

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,0 K5
Edition : 06.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE5/10F2250L395
Type number : 0 460 405 043
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 069 Sond.fzg.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50,00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0,2
(from BDC): ±0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3.10...3.50
Shutoff
electromagnet Volt: 24

Supply-pump pressure

A01

Speed 1/min: 1500
Charge press hPa: 750
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm³/
1000S.: 43.50...44.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 28.00...29.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 8.00...10.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 750
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...100.00
mind 1000S.: 50.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2250
Charge press hPa: 750

TD travel mm: 5.40...6.20
 mm: (5.00...6.60)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1500
 Charge press hPa: 750
 TD travel mm: 3.10...3.50
 mm: (2.50...4.10)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 850
 Charge press hPa: 750
 TD travel mm: 1.10...1.90
 mm: (0.70...2.30)
 Shutoff
 electromagnet Volt: 24
 Supply-pump pressure characteristic:
 1st speed 1/min: 600
 Charge press. hPa: 750
 Supply-pump pressure bar: 3.40...4.00
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1500
 Charge press. hPa: 750
 Supply-pump pressure bar: 5.50...6.10
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 2250
 Charge press. hPa: 750
 Supply-pump pressure bar: 7.30...7.90
 Shutoff
 electromagnet Volt: 24
 Overflow quantity at overflow valve:
 1st speed 1/min: 600
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 55.5...125.0
 (40.5...140.0)
 2nd speed 1/min: 2250
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 69.5...180.5
 (54.5...195.5)
 Delivery-quant. and breakaway char.:
 1st speed 1/min: 850*
 Charge-air pressure-setting point hPa: 400
 LDA-stroke mm: 2,4

Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 35.50...36.50
 (33.00...39.00)
 2nd speed 1/min: 2700
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 0.00...6.00
 (0.00...6.00)
 5th speed 1/min: 2525
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 10.00...14.00
 (8.00...16.00)
 8th speed 1/min: 2425
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 23.00...33.00
 (22.00...34.00)
 9th speed 1/min: 2250
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 36.50...38.50
 (35.30...39.70)
 12th speed 1/min: 1500
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 43.50...44.50
 (41.80...46.20)
 18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 28.00...29.00
 (25.50...31.50)
 20th speed 1/min: 600
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000S.: 33.50...36.50
 (32.00...38.00)
 Mech. shutoff:
 Mech. Abststellung:
 1st speed 1/min: 2250
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 Shutoff
 electromagnet volt: 24
 Electr. shutoff:
 1st speed 1/min: 425

Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 425

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...10.00
1000S.: (5.00...13.00)

Dispersion cm³/: 2.0
1000S.: (3.0)

2nd speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 400

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...85.00
1000S.: -

2nd speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 20.00...40.00
1000S.: -

4th speed 1/min: 100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 50.00...100.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: 5,6...6,0
MS mm: 1,6...2,0
SVS max. mm: 4,0
LDA stroke mm: 2,4

Remarks:

Overflow restriction 0.75 mm - Part No.
..343,..344 :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 3,1 A4
 Edition : 10.12.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/11F1625L217-2B
 Type number : 0 460 414 031
 Customer Part-No. :

Customer-specific information
 Customer : PENTA

Engine : TAM 31

Power KW: 81

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: 0.3
 (from BDC): ±0,02(0.04)

Indicator setting
 Piston stroke mm: 1.0
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000

Setting value mm: 2.30...2.70

Supply-pump pressure

Speed 1/min: 1500
 Charge press hPa: 1000
 Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 83.50...84.50
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 650
 Del. quantity cm³/
 1000S.: 51.00...52.00

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 23.00...27.00
 Del. quantity cm³/: 3.5
 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1800
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 31.00...37.00

Start:

Speed 1/min: 100
 Del. quantity cm³/: 95.00...135.00
 mind 1000S.: 95.00

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1625
 Charge press hPa: 1000
 TD travel mm: 3.10...3.90
 mm: (2.80...4.20)

3rd speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 2.30...2.70
 mm: (1.80...3.20)

4th speed 1/min: 1300
 Charge press hPa: 1000
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)

Supply-pump pressure characteristic:

1st speed 1/min: 1625
Charge press. hPa: 1000
Supply-pump pressure bar: 6.60...7.20
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 3.40...4.00

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1625
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting point hPa: 300
LDA-stroke mm: 6.4
Del. quantity cm³/1000s.: 65.00...66.00
(63.20...67.80)
2nd speed 1/min: 1970
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 0.00...3.00
3rd speed 1/min: 1880
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 3.00...11.00
(2.00...12.00)
5th speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 31.00...37.00
(30.00...38.00)
9th speed 1/min: 1625
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 78.50...81.50
(77.00...83.00)
12th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 83.50...84.50
(81.70...86.30)
15th speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 91.70...94.30
(90.70...95.30)

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18th speed 1/min: 650
Charge press. hPa: -
Del. quantity cm³/1000s.: 51.00...52.00
(49.20...53.80)
20th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 90.00...93.00
(88.50...94.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1625
Charge press. hPa: 1000
Del. quantity cm³/1000s.: 0.00...3.00
1000s.: -

Shutoff electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/1000s.: 0.00...3.00
1000s.: -

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/1000s.: 23.00...27.00
(20.00...30.00)
Dispersion cm³/1000s.: 3.5
(3.5)
2nd speed 1/min: 480
Del. quantity cm³/1000s.: 0.00...3.00
1000s.: -
3rd speed 1/min: 400
Del. quantity cm³/1000s.: 7.00...13.00
(5.50...14.50)

Automatic starting fuel delivery:

4th speed 1/min: 100
Del. quantity cm³/1000s.: 95.00...135.00
1000s.: -

Shutoff electromagnet:

Cut-in min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: K-OT

MS	mm: 1.1...1.5
SVS max.	mm: 0.9
LDA stroke	mm: 6.4
XK	mm: 18.8...20.8
XL	mm: 11.1...14.5

Remarks:

⋮

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Pushing electromagnet.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 3,1 A5
Edition : 10.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1625L217-4B
Type number : 0 460 414 034
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : TAM 31

Power KW: 81

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0,02(0.04)$

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000

Setting value mm: 2.30...2.70

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 83.50...84.50
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 650
Del. quantity cm³/
1000S.: 51.00...52.00

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 23.00...27.00
Del. quantity cm³/
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1800
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 31.00...37.00

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 95.00...135.00
1000S.: 95.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1625
Charge press hPa: 1000
TD travel mm: 3.10...3.90
mm: (2.80...4.20)

3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 2.30...2.70
mm: (1.80...3.20)

4th speed 1/min: 1300
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Supply-pump pressure characteristic:

1st speed 1/min: 1625
Charge press. hPa: 1000
Supply-pump pressure bar: 6.60...7.20
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 3.40...4.00

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Overflow quantity cm³/10s: 41.70...83.40
2nd speed 1/min: 1625
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55.60...139.00

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting point hPa: 300
LDA-stroke mm: 6.4
Del. quantity cm³/1000S.: 65.00...66.00
2nd speed 1/min: 1970
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
3rd speed 1/min: 1880
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 3.00...11.00
5th speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 31.00...37.00
9th speed 1/min: 1625
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 78.50...81.50
12th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 83.50...84.50
15th speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 91.70...94.30

18th speed 1/min: 650
Charge press. hPa: -
Del. quantity cm³/1000S.: 51.00...52.00

20th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 90.00...93.00

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1625
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00

Shutoff electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00

Shutoff electromagnet volt: 24

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/1000S.: 23.00...27.00
Dispersion cm³/1000S.: 3.5

2nd speed 1/min: 480
Del. quantity cm³/1000S.: 0.00...3.00

3rd speed 1/min: 400
Del. quantity cm³/1000S.: 7.00...13.00

Automatic starting fuel delivery:

4th speed 1/min: 100
Del. quantity cm³/1000S.: 95.00...135.00

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: K-OT

MS	mm: 1.1...1.5
SVS max.	mm: 0.9
LDA stroke	mm: 6.4
XK	mm: 18.8...20.8
XL	mm: 11.1...14.5

Remarks:

⋮

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Pushing electromagnet.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF 2,5 R
Edition : 10.12.91
replaces : 24.10.89
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R294
Type number : 0 460 414 054
Customer Part-No. :

Customer-specific information
Customer : SOFIM

Engine : 8140.27.200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.10...1.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 54.50...55.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 650
Del. quantity cm³/
1000S.: 27.50...28.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2200
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 20.50...26.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...80.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1100
Charge press hPa: 1000

Inj.-qty. cm³/
difference 1000S.: 25.0...33.00
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1100
TD-travel
difference mm: 0.40...0.60
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1750
Charge press hPa: 1000
TD travel mm: 5.00...5.80
mm: (4.70...6.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.10...1.50
mm: (0.60...2.00)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 3.60...4.40
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 650
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.10...4.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.80...6.40

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1750
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.70...8.30

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 650

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800*
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6,5
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.50...37.50
1000S.: (33.00...41.00)

2nd speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: -

5th speed 1/min: 2200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.50...26.50
1000S.: (19.00...28.00)

8th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.50...48.50
1000S.: (38.50...50.50)

9th speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...56.00
1000S.: (49.50...56.50)

11th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.50...57.50
1000S.: (51.00...59.00)

12th speed 1/min: 1800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 54.50...55.50
1000S.: (51.50...58.50)

15th speed 1/min: 1100

Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.50...56.50
 1000S.: (50.00...58.00)
 18th speed 1/min: 650
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.50...28.50
 1000S.: (24.50...31.50)
 20th speed 1/min: 650
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.50...59.50
 1000S.: (49.50...60.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...17.00
 1000S.: (11.00...19.00)

Dispersion cm³/: 6.0
 1000S.: (6.5)

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: -

3rd speed 1/min: 325
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 39.00...49.00
 1000S.: (38.00...50.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm³/ : 24.5...26.5 #
 difference 1000S.: -
 KSB/AFB
 valve Volt: 12
 4th speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 2.00...8.00
 difference 1000S.: -

Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1100
 Charge press. hPa: 1000
 TD-travel : 0.40...1.20
 difference mm: -
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1100
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.10...0.30 #
 difference bar: -

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 42.00...78.00
 1000S.: -

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...48.00
 1000S.: -

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...80.00
 1000S.: -

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: K-OT
 MS mm: 0.6...1.0
 SVS max. mm: 2.5
 LDA stroke mm: 6.5
 XK mm: 21.8...23.8
 XL mm: 12.3...15.7

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 2,5 A1
Edition : 09.12.91
replaces : 21.07.88
Calibrating oil : ISO-4113
Injection pump : VE4/11F2100R286-1
Type number : 0 460 414 059
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M711 AT 19.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 6.60...7.00
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 7.30...7.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 47.30...48.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 23.30...24.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

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Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 6.00...10.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 17.00...23.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...80.00
mind 1000S.: 40.00

KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1750
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: 9.00...15.00 *

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1750
Charge press hPa: -
TD-travel
difference mm: 0.50...0.70 *
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 8.90...9.70
mm: (8.60...10.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 6.60...7.00
mm: (6.30...7.30)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000

TD travel mm: 2.30...3.10
mm: (2.00...3.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

8th speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 3.20...5.20
mm: (3.00...5.40)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

9th speed 1/min: 450
Charge press. hPa: 1000
TD travel mm: 3.30...3.50
mm: (2.40...4.40)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.30...7.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

2nd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.50...9.10

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.50...6.10

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.540
quantity cm³/10s: (60.00...134.50)

2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 6,3
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...33.50
1000S.: (30.50...35.50)

3rd speed 1/min: 2500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: -

5th speed 1/min: 2400
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...23.00
1000S.: (16.00...24.00)

8th speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.00...35.00
1000S.: -

9th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...48.50
1000S.: (44.50...49.50)

12th speed 1/min: 1750
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 47.30...48.30
1000S.: (45.00...49.80)

13th speed 1/min: 750
Charge press. hPa: 720
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...49.50
1000S.: -

18th speed 1/min: 750
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 23.30...24.30
1000S.: (21.30...26.30)

20th speed 1/min: 750
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...47.50
1000S.: -

21th speed 1/min: 600
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.0...20.00
1000S.: -

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (3.50...12.50)

Dispersion cm³/: 3.0
1000S.: (3.5)
2nd speed 1/min: 800
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.40
1000S.: -
3rd speed 1/min: 600
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1750
Inj.-qty. cm³/ : 11.0...13.0 #
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1750
Supply pump-
pressure : 0.50...0.70 #
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

2nd speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...55.00
1000S.: -

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...80.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm: 3,2...3,4
KF	mm: -
MS	mm: 0.6...1.0
LDA stroke	mm: 6,3
XK	mm: 17.0...19.0
XL	mm: 10.3...13.7

Remarks:

Overflow restriction 0.75 mm - Part No.
..343,..344 :

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF 2,5 R1
Edition : 10.12.91
replaces : 24.10.89
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R294-1
Type number : 0 460 414 066
Customer Part-No. :

Customer-specific information
Customer : SOFIM

Engine : 8140.27.200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.10...1.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 54.50...55.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 650
Del. quantity cm³/
1000S.: 27.50...28.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2200
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 20.50...26.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...80.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1100
Charge press hPa: 1000

Inj.-qty. cm3/
difference 1000S.: 25.0...33.00
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1100
TD-travel
difference mm: 0.40...0.60
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1750
Charge press hPa: 1000
TD travel mm: 5.00...5.80
mm: (4.70...6.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.10...1.50
mm: (0.60...2.00)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 3.60...4.40
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 650
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.10...4.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.80...6.40

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1750
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 650

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (26.70...98.40)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6,5
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 36.50...37.50
1000S.: (33.00...41.00)

2nd speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...5.00
1000S.: -

5th speed 1/min: 2200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 20.50...26.50
1000S.: (19.00...28.00)

8th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 40.50...48.50
1000S.: (38.50...50.50)

9th speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 50.00...56.00
1000S.: (49.50...56.50)

11th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 52.50...57.50
1000S.: (51.00...59.00)

12th speed 1/min: 1800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 54.50...55.50
1000S.: (51.50...58.50)

15th speed 1/min: 1100

Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.50...56.50
 1000S.: (50.00...58.00)
 18th speed 1/min: 650
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.50...28.50
 1000S.: (24.50...31.50)
 20th speed 1/min: 650
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.50...59.50
 1000S.: (49.50...60.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...17.00
 1000S.: (11.00...19.00)

Dispersion cm³/: 6.0
 1000S.: (6.5)

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: -

3rd speed 1/min: 325
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 39.00...49.00
 1000S.: (38.00...50.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm³/ : 24.5...26.5 #
 difference 1000S.: -
 KSB/AFB
 valve Volt: 12
 4th speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 2.00...8.00
 difference 1000S.: -

Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1100
 Charge press. hPa: 1000
 TD-travel : 0.40...1.20
 difference mm: -
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1100
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.10...0.30 #
 difference bar: -

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 42.00...78.00
 1000S.: -

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...48.00
 1000S.: -

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...80.00
 1000S.: -

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: K-OT
 MS mm: 0.6...1.0
 SVS max. mm: 2.5
 LDA stroke mm: 6.5
 XK mm: 21.8...23.8
 XL mm: 12.3...15.7

Remarks:

:
 :

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 2,5 F
Edition : 05.12.91
replaces : 07.11.89
Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R366
Type number : 0 460 414 073
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 2.5l DI Gr.Spec

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 023

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 0.78
mm: 0.73...0.83
Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.50...2.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 30.50...31.50 F
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 16.00...20.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2100
Del. quantity cm³/
1000S.: 30.50...34.50
Dispersion cm³/: 3.0
1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm³/: 62.00...102.00
mind 1000S.: 62.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1950
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.50...2.90
mm: (2.20...3.20)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 800
 TD travel mm: 0.40...1.20
 mm: (0.10...1.50)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump pressure bar: 3.10...3.70
 Shutoff electromagnet Volt: 12
 2nd speed 1/min: 1000
 Supply-pump pressure bar: 4.80...5.40
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 1250
 Supply-pump pressure bar: 5.60...6.20
 Shutoff electromagnet Volt: 12
 4th speed 1/min: 1950
 Supply-pump pressure bar: 7.70...8.30
 Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...100.00
 (40.60...115.00)
 2nd speed 1/min: 1950
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 83.40...152.90
 (68.40...168.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1950
 HBA-stroke mm: 10,0
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 37,7...41,3 D
 1000S.: (37,0...42,0) D
 2nd speed 1/min: 2400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 0.00...10.00
 1000S.: -
 3rd speed 1/min: 2200

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...26.00
 1000S.: (16.00...28.00)

5th speed 1/min: 2100
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 30.50...34.50
 1000S.: (27.50...37.50)

10th speed 1/min: 1700
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 38.70...42.30
 1000S.: (38.00...43.00)

11th speed 1/min: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 35,50...36,50 E
 1000S.: (33,50...38,50) E

12th speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 30.50...31.50 F
 1000S.: (28,00...34,00) F

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 425
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 16.00...20.00
 1000S.: (14.00...22.00)

Dispersion cm³/: 3.0
 1000S.: (4.0)

2nd speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 5.00...13.00
 1000S.: (3.00...15.00)

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)

1st speed 1/min: 1250
 Shutoff electromagnet Volt: 12

Setting = 12.0 mm

Del. quantity cm³/: 23.00...24.00
1000S.: (21.00...26.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...60.00
1000S.: -

2nd speed 1/min: 480
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.00...34.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.00...102.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm: 3,2...3,4
KF	mm: K-0T
MS	mm: 1,3...1,7
SVS max.	mm: 3,8
HBA stroke	mm: 10,0
TLA-E	mm: 2,7
XK	mm: 17,0...19,0
XL	mm: 10,9...14,5

Pump/engine assignment:
Stroke in blocking position 0.73...
0.83 mm, referenced to outlet "B".
Attach timing-device cover
KDEP 1151.

F = Adjustment point for low full-load
delivery

E = Fuel-delivery adjustment point in
HBA range. (Correction by way of HBA
adjusting screw).

D = Adjustment point for high full-
load delivery

Adjust part-load delivery:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 2,5 G
Edition : 05.12.91
replaces : 07.11.89
Calibrating oil : ISO-4113
Injection pump : VE4/11F2000R366-1
Type number : 0 460 414 074
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 2.5l DI Gr.Spec

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 023

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 0.78
mm: 0.73...0.83

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.50...2.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 30.50...31.50 F

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 18.00...22.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2100
Del. quantity cm3/
1000S.: 30.50...34.50
Dispersion cm3/: 3.0
1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm3/: 62.00...102.00
mind 1000S.: 62.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1950
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.50...2.90
mm: (2.20...3.20)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 800
 TD travel mm: 0.40...1.20
 mm: (0.10...1.50)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump pressure bar: 3.10...3.70
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1000
 Supply-pump pressure bar: 4.80...5.40
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Supply-pump pressure bar: 5.60...6.20
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1950
 Supply-pump pressure bar: 7.70...8.30
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...100.00
 (40.60...115.00)
 2nd speed 1/min: 1950
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 83.40...152.90
 (68.40...168.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1950
 HBA-stroke mm: 10,0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37,7...41,3 D
 1000S.: (37,0...42,0) D
 2nd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...10.00
 1000S.: -
 3rd speed 1/min: 2200

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...26.00
 1000S.: (16.00...28.00)

5th speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.50...34.50
 1000S.: (27.50...37.50)

10th speed 1/min: 1700
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.70...42.30
 1000S.: (38.00...43.00)

11th speed 1/min: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35,50...36,50 E
 1000S.: (33,50...38,50) E

12th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.50...31.50 F
 1000S.: (28,00...34,00) F

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...22.00
 1000S.: (16.00...24.00)

Dispersion cm³/: 3.0
 1000S.: (4.0)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...15.00
 1000S.: (5.00...17.00)

Part-load del. at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)

1st speed 1/min: 1250
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 23.00...24.00
1000S.: (21.00...26.00)

Setting = 12.0 mm

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 30.00...60.00

1000S.: -

2nd speed 1/min: 480

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 24.00...34.00

1000S.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 62.00...102.00

1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4

KF mm: K-OT

MS mm: 1,3...1,7

SVS max. mm: 3,8

HBA stroke mm: 10,0

TLA-E mm: 2,7

XK mm: 17,0...19,0

XL mm: 10,9...14,5

Pump/engine assignment:

Stroke in blocking position 0.73...

0.83 mm, referenced to outlet "B".

Attach timing-device cover

KDEP 1151.

F = Adjustment point for low full-load delivery

E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).

D = Adjustment point for high full-load delivery

Adjust part-load delivery:

A27

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 2,5 H
Edition : 05.12.91
replaces : 07.11.89
Calibrating oil : ISO-4113
Injection pump : VE4/11F2000R366-2
Type number : 0 460 414 075
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 2.5l DI Gr.Spec

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 023

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 0.78
mm: 0.73...0.83

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.50...2.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 30.50...31.50 F
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 16.00...20.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2100
Del. quantity cm3/
1000S.: 30.50...34.50
Dispersion cm3/: 3.0
1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm3/: 62.00...102.00
mind 1000S.: 62.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1950
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.50...2.90
mm: (2.20...3.20)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 800
 TD travel mm: 0.40...1.20
 mm: (0.10...1.50)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump pressure bar: 3.10...3.70
 Shutoff electromagnet Volt: 12
 2nd speed 1/min: 1000
 Supply-pump pressure bar: 4.80...5.40
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 1250
 Supply-pump pressure bar: 5.60...6.20
 Shutoff electromagnet Volt: 12
 4th speed 1/min: 1950
 Supply-pump pressure bar: 7.70...8.30
 Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...100.00
 (40.60...115.00)
 2nd speed 1/min: 1950
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 83.40...152.90
 (68.40...168.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1950
 HBA-stroke mm: 10,0
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 37,7...41,3 D
 1000S.: (37,0...42,0) D
 2nd speed 1/min: 2400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 0.00...10.00
 1000S.: -
 3rd speed 1/min: 2200

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...26.00
 1000S.: (16.00...28.00)

5th speed 1/min: 2100
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 30.50...34.50
 1000S.: (27.50...37.50)

10th speed 1/min: 1700
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 38.70...42.30
 1000S.: (38.00...43.00)

11th speed 1/min: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 35,50...36,50 E
 1000S.: (33,50...38,50) E

12th speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 30.50...31.50 F
 1000S.: (28,00...34,00) F

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 425
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 16.00...20.00
 1000S.: (14.00...22.00)

Dispersion cm³/: 3.0
 1000S.: (4.0)

2nd speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 5.00...13.00
 1000S.: (3.00...15.00)

Part-load del. at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)

1st speed 1/min: 1250
 Shutoff electromagnet Volt: 12

Del. quantity cm³/: 23.00...24.00
1000S.: (21.00...26.00)

Setting = 12.0 mm

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 30.00...60.00

1000S.: -

2nd speed 1/min: 480

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 24.00...34.00

1000S.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 62.00...102.00

1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4

KF mm: K-0T

MS mm: 1,3...1,7

SVS max. mm: 3,8

HBA stroke mm: 10,0

TLA-E mm: 2,7

XK mm: 17,0...19,0

XL mm: 10,9...14,5

Pump/engine assignment:

Stroke in blocking position 0.73...

0.83 mm, referenced to outlet "B".

Attach timing-device cover

KDEP 1151.

F = Adjustment point for low full-load delivery

E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).

D = Adjustment point for high full-load delivery

Adjust part-load delivery:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 3.1 H3
Edition : 10.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900L217-5
Type number : 0 460 414 079
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : TMD 31 B

Power KW: 74
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
Setting value mm: 3.30...3.70

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 6.40...7.00

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 64.00...65.00
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 650
Del. quantity cm³/
1000S.: 46.50...47.50

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 18.00...22.00
Del. quantity cm³/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2000
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 39.00...45.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 83.00...133.00
mind 1000S.: 83.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900
Charge press hPa: 1000
TD travel mm: 4.30...5.10
mm: (4.00...5.40)

3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.30...3.70
mm: (2.80...4.20)

4th speed 1/min: 1300
Charge press hPa: 1000

TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Supply-pump pressure characteristic:

1st speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump pressure bar: 7.70...8.30
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump pressure bar: 6.40...7.00
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 4.10...4.70

Overflow quantity at overflow valve:

1st speed 1/min: 650
Charge press. hPa: -
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900
Charge-air pressure-setting point hPa: 260
LDA-stroke mm: 6.3
Del. quantity cm³/1000S.: 62.00...63.00
(59.50...65.50)
3rd speed 1/min: 2150
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
5th speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 39.00...45.00
(38.00...46.00)
9th speed 1/min: 1900
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 60.00...63.00
(58.50...64.50)
12th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 64.00...65.00
(62.20...66.80)
18th speed 1/min: 650
Charge press. hPa: -
Del. quantity cm³/1000S.: 46.50...47.50
(44.50...49.50)

Mech. shutoff:

Mech. Abst.ellung:

1st speed 1/min: 1900
Del. quantity cm³/1000S.: 0.00...3.00
-

Shutoff electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/1000S.: 0.00...3.00
-

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/1000S.: 18.00...22.00
(15.00...25.00)

Dispersion cm³/1000S.: 3.5
(3.5)

2nd speed 1/min: 400
Del. quantity cm³/1000S.: 4.50...10.50
(3.00...12.00)

4th speed 1/min: 450
Del. quantity cm³/1000S.: 0.00...3.00
-

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm³/1000S.: 63.00...103.00
-

2nd speed 1/min: 500
Del. quantity cm³/1000S.: 50.00...70.00
-

4th speed 1/min: 100
Del. quantity cm³/1000S.: 83.00...133.00
-

Shutoff electromagnet:

Cut-in min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: K-OT
MS mm: 1.1...1.5
SVS max. mm: 5.5
LDA stroke mm: 6.3

Remarks:

⋮
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 4,2 A
Edition : 13.09.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2250R413
Type number : 0 460 414 082
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : T 4.20 (V)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,2
mm: +0,02(0,06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 800

Setting value mm: 4.00...4.40
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 800
Setting value bar: 7.30...7.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 66.50...67.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 29.50...30.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 9.00...11.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.50...25.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...100.00
mind 1000S.: 70.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 800
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1500
Charge press hPa: 800
TD travel mm: 4.00...4.40
mm: (3.60...4.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

4th speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 1.90...2.70
mm: (1.60...3.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 1.50...3.50
mm: (1.30...3.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

9th speed 1/min: 500
Charge press. hPa: 800
TD travel mm: 2.10...2.30
mm: (1.40...3.00)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 800
Supply-pump
pressure bar: 6.00...6.60

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump
pressure bar: 7.30...7.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump
pressure bar: 8.30...8.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 800
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 62.55...104.25
quantity cm³/10s: (47.55...119.25)

2nd speed 1/min: 2250
Charge press. hPa: 800
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 69.50...152.90
quantity cm³/10s: (54.50...167.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6,5

KSB/AFB
valve Volt: 12
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 58.50...59.50
1000S.: (55.50...62.50)

3rd speed 1/min: 2600
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...10.00
 1000S.: (0.00...10.00)
 5th speed 1/min: 2500
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.50...25.50
 1000S.: (20.50...28.50)
 9th speed 1/min: 2250
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...74.00
 1000S.: (69.00...75.00)
 12th speed 1/min: 1250
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 66.50...67.50
 1000S.: (64.50...69.50)
 15th speed 1/min: 1000
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 69.50...72.50
 1000S.: (67.50...74.50)
 18th speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.50...30.50
 1000S.: (27.00...33.00)
 20th speed 1/min: 625
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.50...32.50
 1000S.: (26.00...34.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Idle delivery:

1st speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 9.00...11.00
 1000S.: (6.00...14.00)

Dispersion cm³/: 3.0
 1000S.: (4.0)

2nd speed 1/min: 500
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

Automatic starting fuel delivery:

2nd speed 1/min: 350
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...40.00
 1000S.: (20.00...40.00)

4th speed 1/min: 100
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...100.00
 1000S.: (70.00...100.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.3
 KF mm: K-OT
 MS mm: 0.6...1.0
 SVS max. mm: -
 LDA stroke mm: 6.5

XK mm: 20.0...22.0
XL mm: 10.7...14.1

Remarks:

⋮



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 2,5 K
Edition : 06.12.91
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE4/11F2000R431
Type number : 0 460 414 086

Customer-specific information
Customer : FORD

Engine : 2,5 L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 023

Opening
Pressure bar: 172.0..175.00

Perforated-plate
diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 0.78
mm: 0.73...0.83

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2,5...2,9

B10

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5,6...6,2

Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 30,5...31,5 F

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 16,0...20,0

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3,0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2100
Del. quantity cm³/
1000S.: 30,5...34,5

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: -
mind 1000S.: 62,0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0,4...1,2
mm: (0,1...1,5)

electromagnet Volt: 12
2nd speed 1/min: 1250
TD travel mm: 2,5...2,9
mm: (2,2...3,2)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1950

TD travel mm: 5,8...6,6
mm: (5,5...6,9)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 3,1...3,7
Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1000
Supply-pump pressure bar: 4,8...5,4
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1250
Supply-pump pressure bar: 5,6...6,2
Shutoff
electromagnet Volt: 12

4th speed 1/min: 1950
Supply-pump pressure bar: 7,7...8,3
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55,5...100,0
(40,5...115,0)

2nd speed 1/min: 1950
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 83,3...152,7
(68,3...167,7)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1950
HBA-stroke mm: 9,8
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37,7...41,3 D
1000S.: (37,0...42,0)D

2nd speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0,0...10,0
1000S.: -

3rd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18,0...26,0
1000S.: (16,0...28,0)

4th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30,5...34,5
1000S.: (27,5...37,5)

5th speed 1/min: 1700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38,7...42,3
1000S.: (38,0...43,0)

6th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35,5...36,5 E
1000S.: (33,5...38,5)E

7th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30,5...31,5 F
1000S.: (28,0...34,0)F

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0,0...3,0
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16,0...20,0
1000S.: (14,0...22,0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5,0...13,0
1000S.: (3,0...15,0)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 20,0

1st speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 23,0...24,0
1000S.: (21,0...26,0)

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30,0...60,0
1000S.: -

2nd speed 1/min: 480
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24,0...34,0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm: 3,2...3,4
KF mm: K-OT
MS mm: 1,3...1,7
HBA stroke mm: 9,8

Pump/engine assignment:
Stroke in blocking position 0.73...
0.83 mm, referenced to outlet "B".
Attach timing-device cover
KDEP 1151.

F = Adjustment point for low full-load
delivery
E = Fuel-delivery adjustment point in
HBA range. (Correction by way of HBA
adjusting screw).
D = Adjustment point for high full-
load delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 5,6 P5
Edition : 10.12.91
replaces : 20.07.87
Calibrating oil : ISO-4113
Injection pump : VE6/11F1500R55-9
Type number : O 460 416 056
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0226 MF

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 150.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.6
(from BDC): +0,02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 6.00...6.40
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 63.50...64.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 3.5
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 6.00...12.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 3.0
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1550
Del. quantity cm3/
1000S.: 52.00...58.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...90.00
mind 1000S.: 50.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
TD travel mm: 8.60...9.40
mm: (8.30...9.70)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
TD travel mm: 6.00...6.40
mm: (5.50...6.90)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 600
TD travel mm: 3.30...4.10
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 4.20...4.80
Shutoff electromagnet Volt: 24
2nd speed 1/min: 1000
Supply-pump pressure bar: 5.70...6.30
Shutoff electromagnet Volt: 24
3rd speed 1/min: 1400
Supply-pump pressure bar: 7.20...7.80
Shutoff electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff electromagnet Volt: 24
Overflow quantity cm³/10s: (41.70...83.40)
(26.70...98.40)
2nd speed 1/min: 1500
Shutoff electromagnet Volt: 24
Overflow quantity cm³/10s: (55.60...139.00)
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 1630
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 0.00...15.00
1000S.: -
4th speed 1/min: 1580
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000S.: -
5th speed 1/min: 1550
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 52.00...58.00
1000S.: (50.50...59.50)
9th speed 1/min: 1500
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 69.50...72.50
1000S.: (68.00...74.00)

12th speed 1/min: 1000
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 63.50...64.50
1000S.: (61.50...66.50)
20th speed 1/min: 600
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 45.50...49.50
1000S.: (44.00...51.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1500
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)

Dispersion cm³/: 3.0
1000S.: (3.5)

2nd speed 1/min: 450
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 370
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 55.00...95.00
1000S.: -

2nd speed 1/min: 500
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000S.: -

4th speed 1/min: 100
Shutoff electromagnet Volt: 24

Del. quantity cm3/: 50.00...90.00

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.7...6.0

MS mm: 1.2..1.45

SVS max. mm: 2.5

XK mm: 17.0...19.0

XL mm: 13.3...16.7

Remarks:

: # MAN 7742

:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 5.6 P11
 Edition : 09.12.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/11F1500R55-10
 Type number : 0 460 416 060
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0226 MF

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.6
 (from BDC): ±0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Setting value mm: 6.00...6.40

Supply-pump pressure

Speed 1/min: 1000
 Setting value bar: 5.70...6.30

Full-load del. w/out charge press.:

Speed 1/min: 1000
 Del. quantity cm³/
 1000S.: 63.5...64.50
 Dispersion cm³/: 3.5
 1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 6.00...12.00
 Del. quantity cm³/: 3.0
 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1550
 Del. quantity cm³/
 1000S.: 52.00...58.00

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...90.00
 mind 1000S.: 50.00

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
 TD travel mm: 8.60...9.40
 mm: (8.30...9.70)
 3rd speed 1/min: 1000
 TD travel mm: 6.00...6.40
 mm: (5.50...6.90)
 4th speed 1/min: 600
 TD travel mm: 3.30...4.10
 mm: (3.00...4.40)

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump
 pressure bar: 4.20...4.80
 bar: (3.90...5.10)
 2nd speed 1/min: 1000
 Supply-pump
 pressure bar: 5.70...6.30
 bar: (5.40...6.60)
 3rd speed 1/min: 1500
 Supply-pump
 pressure bar: 7.50...8.10
 bar: (7.20...8.40)

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1500
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1650
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)
4th speed 1/min: 1600
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)
5th speed 1/min: 1550
Del. quantity cm³/: 52.00...58.00
1000S.: (50.50...59.50)
9th speed 1/min: 1500
Del. quantity cm³/: 69.50...72.50
1000S.: (68.00...74.00)
12th speed 1/min: 1000
Del. quantity cm³/: 63.50...64.50
1000S.: (61.50...66.50)
20th speed 1/min: 600
Del. quantity cm³/: 45.50...49.50
1000S.: (44.00...51.00)

Mech. shutoff:
Mech. Abst. ellung:

1st speed 1/min: 1500
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)
Dispersion cm³/: 3.0
1000S.: (3.5)
2nd speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 370
Del. quantity cm³/: 55.00...95.00
1000S.: (55.00...95.00)

2nd speed 1/min: 500
Del. quantity cm³/: 25.00...55.00
1000S.: (25.00...55.00)

4th speed 1/min: 100
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.6...6.0
MS mm: 1.1...1.5
SVS max. mm: 2.6

Remarks:

:
:
Pushing electromagnet.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D
Edition : 08.11.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R394
Type number : 0 460 416 067
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8065.25.220

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 700
Charge press. hPa: 1000
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700
Charge press hPa: 1000
Setting value bar: 4.30...4.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 83.50...84.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.5
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 74.00...75.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm³/
1000S.: 16.00...20.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1260
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 85.00...135.00
mind 1000S.: 85.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 3.10...3.90
 mm: (2.80...4.20)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 700
 Charge press hPa: 1000
 TD travel mm: 2.20...2.60
 mm: (1.70...3.10)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 550
 Charge press hPa: 1000
 TD travel mm: 0.80...1.60
 mm: (0.50...1.90)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 550
 Charge press. hPa: 1000
 Supply-pump pressure bar: 3.60...4.20
 bar: (3.30...4.50)
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 700
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.30...4.90
 bar: (4.00...5.20)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1150
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.10...6.70
 bar: (5.80...7.00)
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm3/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm3/10s: 55.60...139.00
 (40.60...153.00)
 Delivery-quant. and breakaway char.:

1st speed 1/min: 500
 Charge-air pressure-setting point hPa: 350
 LDA-stroke mm: 4.7
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 79.00...80.00
 (75.50...83.50)
 2nd speed 1/min: 1280
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 30.50...38.50
 (29.50...39.50)
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 0.00...3.00
 (0.00...3.00)
 5th speed 1/min: 1260
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 47.00...53.00
 (44.00...56.00)
 9th speed 1/min: 1150
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 80.00...83.00
 (78.00...85.00)
 10th speed 1/min: 650
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 87.00...91.00
 (85.50...92.50)
 12th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 83.50...84.50
 (80.50...87.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 74.00...75.00
 (71.00...78.00)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000S.: 84.50...88.50
 (83.00...90.00)
 Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...20.00
1000S.: (14.00...22.00)

Dispersion cm³/: 3.0
1000S.: (4.0)

2nd speed 1/min: 420
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...135.00
1000S.: (85.00...135.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...80.00
1000S.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...135.00
1000S.: (85.00...135.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -

KF mm: KOT
MS mm: 1.0...1.4
SVS max. mm: 4.7
LDA stroke mm: 4.7
XK mm: 23.0...25.0
XL mm: 15.8...19.2

Remarks:

⋮
* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T6
Edition : 06.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/11F1350R417-2
Type number : 0 460 416 070
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 GF03

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.55
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.00...5.60
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 78.00...79.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1410
Del. quantity cm³/
1000S.: 57.00...63.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...85.00
mind 1000S.: 35.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
TD travel mm: 4.50...5.30
mm: (4.50...5.30)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900

TD travel mm: 0.70...1.50
 mm: (0.40...1.80)
 Shutoff
 electromagnet Volt: 24
 6th speed 1/min: 1100
 TD travel mm: 2.50...3.30
 mm: (2.20...3.60)
 Shutoff
 electromagnet Volt: 24
 Supply-pump pressure characteristic:
 1st speed 1/min: 600
 Supply-pump pressure bar: 3.00...3.60
 bar: (2.70...3.90)
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1000
 Supply-pump pressure bar: 5.00...5.60
 bar: (4.70...5.90)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1350
 Supply-pump pressure bar: 7.00...7.60
 bar: (6.70...7.90)
 Shutoff
 electromagnet Volt: 24
 Overflow quantity at overflow valve:
 1st speed 1/min: 600
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 41.70...83.40
 2nd speed 1/min: 1350
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 55.60...139.00
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1550
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...15.00
 1000S.: (0.00...15.00)
 4th speed 1/min: 1450
 Del. quantity cm³/: 15.00...45.00
 1000S.: (15.00...45.00)

5th speed 1/min: 1410
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 57.00...63.00
 1000S.: (55.50...64.50)
 9th speed 1/min: 1350
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 77.00...80.00
 1000S.: (75.50...81.50)
 11th speed 1/min: 300
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.00...79.00
 1000S.: (73.50...80.50)
 12th speed 1/min: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 78.00...79.00
 1000S.: (76.00...81.00)
 20th speed 1/min: 600
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 58.00...64.00
 1000S.: (57.00...65.00)
 Mech. shutoff:
 Mech. Abstellung:
 1st speed 1/min: 1350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24
 Electr. shutoff:
 1st speed 1/min: 300
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 Idle delivery:
 1st speed 1/min: 300
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 7.00...13.00
 1000S.: (5.00...15.00)
 Dispersion cm³/: 6.0
 1000S.: (6.5)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.3
SVS max.	mm: 3.4

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3.6 M
Edition : 09.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1350R392
Type number : 0 460 424 070
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.45.281

Power KW: 88.4

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 2.20...2.60

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1150
Charge press hPa: 1000
Setting value bar: 6.30...7.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 119.50...120.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 76.50...77.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 370
Del. quantity cm³/
1000S.: 18.00...22.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 61.00...67.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 90.00...140.00
mind 1000S.: 90.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1100
 Charge press hPa: 1000
 Inj.-qty. cm³/
 difference 1000S.: 8.00...16.00
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1100
 Charge press hPa: 1000
 TD-travel
 difference mm: 1.40...1.60
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.70...4.50
 mm: (3.40...4.80)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.20...2.60
 mm: (1.70...3.10)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 900
 Charge press hPa: 1000
 TD travel mm: 0.60...1.40
 mm: (0.30...1.70)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.20...4.80
 bar: (3.80...5.20)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.70...7.30
 bar: (6.30...7.70)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.50...8.10
 bar: (7.10...8.50)

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1350
 Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 500*
 Charge-air pressure-setting
 point hPa: 500
 ADA-stroke mm: 6.3
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 101.50...102.50
 1000S.: (98.50...105.50)

3rd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 61.00...67.00
 1000S.: (58.00...70.00)

9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 116.50...120.50
 1000S.: (115.00...122.00)

10th speed 1/min: 500
 12th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm³/: 119.50...120.50
 1000S.: (117.00...123.00)

18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 76.50...77.50
 1000S.: (74.00...80.00)

20th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 115.00...119.00
1000S.: (113.50...120.50)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 370
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 370
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...22.00
1000S.: (15.00...25.00)

Dispersion cm³/: 3.5
1000S.: (4.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1100
Charge press. hPa: 1000
Inj.-qty. cm³/ : 8.00...16.00
difference 1000S.: (8.00...16.00)

2nd speed 1/min: 1100
Charge press. hPa: 1000
TD-travel : 1.40...1.60
difference mm: (1.40...1.60)
Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 100.00...150.00
1000S.: (100.00...150.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.00...50.00
1000S.: (26.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...140.00
1000S.: (90.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.1...5.5
MS mm: 0.8...1.2
LDA stroke mm: 6.3

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3,6 N
Edition : 15.07.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1350R407
Type number : 0 460 424 075
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.25.4000 TC

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.40...1.80

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 78.50...79.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 50.50...51.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 250
Del. quantity cm³/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1525
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 30.00...36.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.70...3.50)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.40...1.80
mm: (0.70...2.50)

5th speed 1/min: 1350
Charge press. hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.20...5.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 3.70...4.30

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 7.50...8.10

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*

Charge-air pressure-setting

point hPa: 375
LDA-stroke mm: 6,7

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 69.00...70.00
(65.50...73.50)

2nd speed 1/min: 1600
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1525
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 30.00...36.00
(27.00...39.00)

8th speed 1/min: 1475
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 43.00...51.00
(41.00...53.00)

9th speed 1/min: 1350
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 68.50...71.50
(66.50...73.50)

10th speed 1/min: 1200
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 71.00...75.00
(69.50...76.50)

12th speed 1/min: 700
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 79.00...80.00
(76.00...83.00)

18th speed 1/min: 600
Charge press. hPa: -

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 51.50...52.50
(48.50...55.50)

20th speed 1/min: 600
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 82.50...86.50
(81.00...88.00)

21th speed 1/min: 500
Charge press. hPa: -

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 50.00...54.00
1000S.: (48.00...56.00)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 3.5
1000S.: (5.0)

2nd speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 45.00...65.00
1000S.: (45.00...65.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3,7
KF mm: K-OT
MS mm: 0,7...1,1
LDA stroke mm: 6,7

Operate control lever after each
manifold-pressure compensator pressure
change. :

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3,6 N1
Edition : 03.12.91
replaces : 15.07.91
Calibrating oil : ISO-4113

Injection pump : VE4/12F1350R407-1
Type number : 0 460 424 076
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.45.4000 TCA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.90...2.30

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 72.00...73.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 42.50...43.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1525
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 23.00...29.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...110.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.70...3.50)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.40...1.80
mm: (0.70...2.50)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1350
Charge press. hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.20...5.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.10...4.70
Shutoff
electromagnet Volt: 24

2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.80...6.40
Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 104.25...145.95
(89.25...160.95)

2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 111.20...194.60
(96.20...209.60)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600*
Charge-air pressure-setting
point hPa: 510
LDA-stroke mm: 6,5
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 62.00...63.00
(58.50...66.50)

2nd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1525
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 30.00...36.00
(27.00...39.00)

8th speed 1/min: 1450
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 49.00...57.00
(47.00...59.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 63.00...66.00
(61.00...68.00)

10th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 64.50...68.50
(63.00...70.00)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 72.00...73.00
(69.00...76.00)

18th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 42.50...43.50
(39.50...46.50)

20th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 74.50...78.50
(73.00...80.00)

21th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 41.00...45.00
1000S.: (39.00...47.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 3.5
1000S.: (5.0)

2nd speed 1/min: 475
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...50.00
1000S.: (45.00...65.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3,7
KF mm: K-OT
MS mm: 0,7...1,1
LDA stroke mm: 6,9

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.75 mm - Part No.
..343,..344

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3,6 N2
Edition : 04.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1350R407-2
Type number : 0 460 424 077
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.25.4200 LTC

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.20...2.60

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 67.50...68.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 50.00...51.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1525
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 17.00...23.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.90...3.70
mm: (2.40...4.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.20...2.60
mm: (1.50...3.30)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1350
Charge press. hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.20...5.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.70...4.30
bar: (3.40...4.60)

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
bar: (5.40...6.60)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
bar: (7.20...8.40)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 41.00...83.00
quantity cm3/10s: (26.00...98.00)

2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.00...138.00
quantity cm3/10s: (40.00...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
Charge-air pressure-setting
point hPa: 510
LDA-stroke mm: 6.0
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 64.50...65.50
1000S.: (61.00...69.00)

2nd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1525
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 17.00...23.00
1000S.: (14.00...26.00)

8th speed 1/min: 1475
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 33.00...41.00
1000S.: (31.00...43.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 59.00...63.00
1000S.: (57.00...64.00)

10th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 62.50...66.50
1000S.: (61.00...68.00)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 67.50...68.50
1000S.: (64.50...71.50)

18th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 50.00...51.00
1000S.: (47.00...54.00)

20th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 67.50...71.50
1000S.: (66.00...73.00)

21th speed 1/min: 500

Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 48.50...52.50
1000S.: (46.50...54.50)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 3.5
1000S.: (5.0)

2nd speed 1/min: 475
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...50.00
1000S.: (45.00...65.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.9...4.1
KF mm: K-OT
LDA stroke mm: 6.0

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX.
Edition : 10.10.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/12F1400R454
Type number : 0 460 424 082
Customer Part-No. :

Customer-specific information
Customer : MAXON

Engine : S4

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0,02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.3...2.7
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 5.0...5.6
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 90.5...91.5

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 28.0...32.0

Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Del. quantity cm³/
1000S.: 69.0...75.0

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 90.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0.5...1.3
mm: (0.3...1.5)

electromagnet Volt: 12
2nd speed 1/min: 1000
TD travel mm: 2.3...2.7
mm: (2.0...3.0)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1350
TD travel mm: 3.8...4.6
mm: (3.6...4.8)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump pressure bar: 4.1...4.7
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1000
Supply-pump pressure bar: 5.0...5.6
Shutoff electromagnet Volt: 12
3rd speed 1/min: 1350
Supply-pump pressure bar: 6.5...7.1
Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: (41...83)
2nd speed 1/min: 1350
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1550
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (17.0...27.0)
2nd speed 1/min: 1450
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (69.0...75.0)
3rd speed 1/min: 1350
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (85.5...89.5)
4th speed 1/min: 1000
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (90.5...91.5)
5th speed 1/min: 500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (59.0...65.0)

Mech. shutoff:
Mech. Abst.:

1st speed 1/min: 350
Del. quantity cm³/1000S.: (0.0...3.0)

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (28.0...32.0)

2nd speed 1/min: 400
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (8.0...16.0)

3rd speed 1/min: 450
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (0.0...6.0)

Automatic starting fuel delivery:

1st speed 1/min: 175
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (50.0...110.0)

2nd speed 1/min: 250
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: (40.0...80.0)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5,2...5,6
MS mm: 0.7...1.1

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 10.10.91
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE4/12F1400R455
Type number : O 460 424 083
Customer Part-No. :

Customer-specific information
Customer : MAXON

Engine : S4T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.0...133.0

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 800
Setting value mm: 2.2...2.6
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 800
Setting value bar: 5.9...6.5
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 800
Del. quantity cm³/
1000S.: 136.0...137.0

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 85.0...89.0

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 22.0...26.0

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1475
Charge press hPa: 800
Del. quantity cm³/
1000S.: 1066.0...112.0

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/: -
mind 1000S.: 125.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press hPa: 800

TD travel mm: 0.9...1.7
mm: (0.7...1.9)
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 2.2...2.6
mm: (1.9...2.9)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 800
TD travel mm: 2.8...3.6
mm: (2.6...3.8)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 800
Supply-pump pressure bar: 5.0...5.6
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 800
Supply-pump pressure bar: 5.9...6.5
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 800
Supply-pump pressure bar: 6.9...7.5
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1250
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: -
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 119.0...123.0
1000S.: (118.0...124.0)

2nd speed 1/min: 1570
Charge press. hPa: 800
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 35.0...45.0
1000S.: (42.5...47.5)

3rd speed 1/min: 1475
Charge press. hPa: 800
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 106.0...112.0
1000S.: (104.0...114.0)

4th speed 1/min: 1250
Charge press. hPa: 800
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 135.0...139.0
1000S.: (134.0...140.0)

5th speed 1/min: 1000
Charge press. hPa: 800
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 136.0...137.0
1000S.: (135.0...138.0)

6th speed 1/min: 800
Charge press. hPa: 800
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 136.0...142.0
1000S.: (135.0...143.0)

7th speed 1/min: 750
Charge press. hPa: 400
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 119.0...123.0
1000S.: (118.0...124.0)

8th speed 1/min: 500
Charge press. hPa: -
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 85.0...89.0
1000S.: (84.0...90.0)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 22.0...26.0
1000S.: (21.0...27.0)
2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.0...18.0
1000S.: (9.0...19.0)
3rd speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.0...6.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 0.6...1.0

Remarks:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.5 R1
Edition : 02.12.91
replaces : 03.05.90
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R329-1
Type number : 0 460 426 120
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.25.241

Power KW: 100

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +/-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 3.00...3.40

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1000
Setting value bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 96.00...97.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 66.50...67.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 37.00...43.00

Shutoff
electromagnet Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 75.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
 Charge press hPa: 1000
 Inj.-qty. cm³/
 difference 1000S.: 12.00...20.00
 Shutoff
 electromagnet Volt: 12.0
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1200
 Charge press hPa: 1000
 TD-travel
 difference mm: 1.40...1.60
 Shutoff
 electromagnet Volt: 12.0
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1200
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.00...0.40
 Shutoff
 electromagnet Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.60...4.40
 mm: (3.30...4.70)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press hPa: 1000
 TD travel mm: 3.00...3.40
 mm: (2.50...3.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 900
 Charge press hPa: 1000
 TD travel mm: 0.70...1.50
 mm: (0.40...1.80)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.00...5.60
 bar: (4.60...6.00)

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 900
 Charge press. hPa: 1000

Supply-pump
 pressure bar: 6.60...7.20
 bar: (6.20...7.60)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press. hPa: 1000

Supply-pump
 pressure bar: 7.70...8.30
 bar: (7.30...8.70)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 8.30...8.90
 bar: (7.90...9.30)

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500*
 Charge-air pressure-setting
 point hPa: 500
 LDA-stroke mm: 3.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 81.00...82.00
 1000S.: (78.00...85.00)

3rd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.00...43.00
 1000S.: (34.00...46.00)

9th speed 1/min: 1350
 Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 92.50...95.50
 1000S.: (91.00...97.00)
 12th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 96.00...97.00
 1000S.: (93.50...99.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 66.50...67.50
 1000S.: (64.00...70.00)
 20th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 90.50...93.50
 1000S.: (89.00...95.00)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1350
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...17.00
 1000S.: (10.00...20.00)
 Dispersion cm³/: 3.5
 1000S.: (4.0)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1200
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 12.00...20.00
 difference 1000S.: (12.00...20.00)
 Shutoff
 electromagnet Volt: 12.0
 2nd speed 1/min: 1200
 Charge press. hPa: 1000
 TD-travel : 1.40...1.60
 difference mm: (1.40...1.60)
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1200
 2nd speed 1/min: 1200
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.00...0.40
 difference bar: (0.20...0.20)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 150
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 85.00...125.00
 1000S.: (85.00...125.00)

2nd speed 1/min: 250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.00...60.00
 1000S.: (36.00...60.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 75.00...115.00
 1000S.: (75.00...115.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: -
 KF mm: 5.0...5.4
 MS mm: -
 SVS max. mm: -
 LDA stroke mm: 3.0

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D1
Edition : 04.12.91
replaces : 11.11.91
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R404
Type number : 0 460 426 169
Customer Part-No. :

Customer specific information
Customer : IVECO-FIAT

Engine : 8060.25.4200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.30...1.70

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 61.50...62.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 49.00...50.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 4.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 38.00...46.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.30...1.70
 mm: (0.60...2.40)

Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.20...3.00
 mm: (1.70...3.50)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.70...4.50
 mm: (3.20...5.00)

Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.90...6.50
 bar: (5.60...6.80)

Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.00...4.60
 bar: (3.70...4.90)

Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.50...8.10
 bar: (7.20...8.40)

Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)

2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 55.60...139.00
 (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting point hPa: 225
 LDA-stroke mm: 5.7

Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 57.50...58.50
 (54.00...62.00)

2nd speed 1/min: 1475
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 38.00...46.00
 (34.00...48.00)

3rd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)

5th speed 1/min: 1525
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 22.00...28.00
 (19.00...31.00)

9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 53.50...56.50
 (51.50...58.50)

10th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 56.00...60.00
 (54.50...61.50)

12th speed 1/min: 700
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 61.50...62.50
 (58.50...65.50)

18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 49.00...50.00
 (46.00...53.00)

20th speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff

electromagnet Volt: 24
 Del. quantity cm³/1000s.: 62.00...66.00
 (60.50...67.50)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 2.0
1000S.: (5.0)

2nd speed 1/min: 475

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...80.00
1000S.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.7
KF	mm: KOT
MS	mm: 0.7...1.1
LDA stroke	mm: 5.7
XK	mm: 20.0...22.0
XL	mm: 9.8...13.2

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D2
Edition : 05.12.91
replaces : 11.11.91
Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R404-1
Type number : 0 460 426 170
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.4100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000

Setting value mm: 1.30...1.70
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 72.50...73.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 41.50...42.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 38.00...46.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.30...1.70
mm: (0.60...2.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.70...3.50)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1350
Charge press hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.20...5.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 5.90...6.50
bar: (5.60...6.80)

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 4.00...4.60
bar: (3.70...4.90)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 7.40...8.00
bar: (7.10...8.30)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm3/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm3/10s: 55.60...139.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: 7.2
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 61.00...62.00
(57.50...65.50)

2nd speed 1/min: 1475
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 38.00...46.00
(34.00...48.00)

3rd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1525
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 22.00...28.00
(19.00...31.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 61.50...64.50
(59.50...66.50)

10th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 53.50...57.50
(62.00...69.00)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 72.50...73.50
(69.50...76.50)

18th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 41.50...42.50
(38.50...45.50)

20th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 75.00...79.00
(73.50...80.50)

Mech. shutoff:
Mech. Abst.:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 2.0
1000S.: (5.0)

2nd speed 1/min: 475
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...80.00
1000S.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.7
KF mm: KOT
MS mm: 0.7...1.1
LDA stroke mm: 7.2

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

Overflow restriction 0.75 mm - Part No.
..343,..344

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D3
Edition : 06.12.91
replaces : 11.11.91
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R404-2
Type number : 0 460 426 171
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.25.4000

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 0.90...1.30

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 78.00...79.00

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 50.00...51.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 4.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 49.00...57.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...120.00
mind 1000S.: 70.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.90...1.30
mm: (0.20...2.00)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.90...2.70
mm: (1.40...3.20)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1350
Charge press hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.20...5.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70
bar: (5.80...7.00)

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 4.20...4.80
bar: (3.90...5.10)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 7.70...8.30
bar: (7.40...8.60)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm3/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm3/10s: 55.60...139.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 66.50...67.50
(57.50...65.50)

2nd speed 1/min: 1475
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 49.00...57.00
(47.00...59.00)

3rd speed 1/min: 1625
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1525
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 31.00...37.00
(28.00...40.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 68.00...71.00
(66.00...73.00)

10th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 71.50...77.50
(70.00...77.00)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 78.00...79.00
(75.00...82.00)

18th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 50.00...51.00
(47.00...54.00)

20th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/1000s.: 80.00...84.00
(78.50...85.50)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 2.0
1000S.: (5.0)

2nd speed 1/min: 475

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...60.00
1000S.: (40.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.7
KF mm: KOT
MS mm: 0.7...1.1
LDA stroke mm: 7.0
XK mm: 20.0...22.0
XL mm: 11.9...15.3

Remarks:

:
:
* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 6,0 F
Edition : 09.12.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE6/12F1250R406
Type number : 0 460 426 179

Customer-specific information
Customer : PERKINS

Engine : Q20 PHASER

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...42.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.0...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.25
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1,0
mm: ±0.02(0.06)

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1200

Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 700
Charge press hPa: 1200
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1200
Del. quantity cm3/
1000S.: 81.0...82.0
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: -

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 59.5...61.5
Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 325
Charge press hPa: -
Del. quantity cm3/
1000S.: 8.0...12.0
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.0
1000S.: -

Full-load speed regulation

Speed 1/min: 1400
Charge press hPa: 1200
Del. quantity cm3/
1000S.: 37.0...43.0
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1200
TD travel mm: 0.4...1.2
mm: (0.1...1.5)
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press hPa: 1200
TD travel mm: 1.4...1.8
mm: (0.9...2.3)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 1.9...2.7
mm: (1.6...3.0)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 1.9...2.7
mm: (1.6...3.0)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1200
Supply-pump pressure bar: 4.7...5.3
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6.3...6.9
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 6.9...7.5
Shutoff

electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.6...83.3
(26.6...98.3)
2nd speed 1/min: 1250
Charge press. hPa: 1200

Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.5...138.8
(40.5...153.8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 700
LDA-stroke mm: 6.7
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 76.0...77.0
(73.0...80.0)

2nd speed 1/min: 1480
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.0...7.0
-

3rd speed 1/min: 1400
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 37.0...43.0
(34.0...46.0)

4th speed 1/min: 1350
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 56.0...64.0
(54.0...66.0)

5th speed 1/min: 1250
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 83.0...86.0
(81.0...88.0)

6th speed 1/min: 1000
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 77.0...80.0
(75.0...82.0)

7th speed 1/min: 700
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 81.0...82.0
(78.0...85.0)

8th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 60.5...61.5
(57.5...64.5)

9th speed 1/min: 500
Charge press. hPa: -

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 62.5...65.5
1000S.: (60.5...67.5)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Charge press. hPa: 1200
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 325
Charge press. hPa: -
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.0...12.0
1000S.: (5.0...15.0)

Dispersion cm³/: 5.0
1000S.: -

2nd speed 1/min: 420

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.0...3.0
1000S.: -

3rd speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 2.0...8.0
1000S.: (0.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 110.0...170.0
1000S.: -

2nd speed 1/min: 230
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 50.0...90.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: K-OT
MS mm: 0.9...1.3
SVS max. mm: 3.5
LDA stroke mm: 6.7
XK mm: 21.8...23.8
XL mm: 10.2...13.6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 6,0 F1
Edition : 09.12.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE6/12F125DR406
Type number : D 460 426 179
Customer Part-No. : 2 643 J61 3

Customer-specific information
Customer : PERKINS

Engine : Q20 PHASER

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...42.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.0...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.25
(from BDC): +/-0.02(0.04)

Start of delivery block
Piston stroke mm: 1,0
mm: +/-0.02(0.06)

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

D01

Charge press. hPa: 1200
Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700
Charge press hPa: 1200
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1200
Del. quantity cm3/
1000S.: 81.0...82.0
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: -

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 59.5...61.5
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
Charge press hPa: -
Del. quantity cm3/
1000S.: 8.0...12.0
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.0
1000S.: -

Full-load speed regulation

Speed 1/min: 1400
Charge press hPa: 1200
Del. quantity cm3/
1000S.: 37.0...43.0
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1200
TD travel mm: 0.4...1.2
mm: (0.1...1.5)

electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 1200
TD travel mm: 1.4...1.8
mm: (0.9...2.3)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 1.9...2.7
mm: (1.6...3.0)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 1.9...2.7
mm: (1.6...3.0)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1200
Supply-pump pressure bar: 4.7...5.3

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6.3...6.9

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 6.9...7.5

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.6...83.3
(26.6...98.3)
2nd speed 1/min: 1250

Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.5...138.8
(40.5...153.8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 700
LDA-stroke mm: 6.7
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 76.0...77.0
(73.0...80.0)

2nd speed 1/min: 1480
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.0...7.0

3rd speed 1/min: 1400
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 37.0...43.0
(34.0...46.0)

4th speed 1/min: 1350
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 56.0...64.0
(54.0...66.0)

5th speed 1/min: 1250
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 83.0...86.0
(81.0...88.0)

6th speed 1/min: 1000
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 77.0...80.0
(75.0...82.0)

7th speed 1/min: 700
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 81.0...82.0
(78.0...85.0)

8th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 60.5...61.5
(57.5...64.5)

9th speed 1/min: 500

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.5...65.5
1000S.: (60.5...67.5)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Charge press. hPa: 1200
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 325
Charge press. hPa: -
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.0...12.0
1000S.: (5.0...15.0)

Dispersion cm³/: 5.0
1000S.: -

2nd speed 1/min: 420

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.0...3.0
1000S.: -

3rd speed 1/min: 350

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0...8.0
1000S.: (0.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 110.0...170
1000S.: -

2nd speed 1/min: 230
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.0...90.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: K-0T
MS mm: 0.9...1.3
SVS max. mm: 3.5
LDA stroke mm: 6.7
XK mm: 21.8...23.8
XL mm: 10.2...13.6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 6,0 F2
Edition : 09.12.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE6/12F1250R406
Type number : 0 460 426 179
Customer Part-No. : 2 643 J61 4

Customer-specific information
Customer : PERKINS

Engine : Q20 PHASER

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...42.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.0...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.25
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1,0
mm: $\pm 0.02(0.06)$

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

004

Charge press. hPa: 1200
Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 700
Charge press hPa: 1200
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1200
Del. quantity cm³/
1000S.: 81.0...82.0
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 5.0
1000S.: -

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 59.5...61.5
Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 325
Charge press hPa: -
Del. quantity cm³/
1000S.: 8.0...12.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.0
1000S.: -

Full-load speed regulation

Speed 1/min: 1400
Charge press hPa: 1200
Del. quantity cm³/
1000S.: 37.0...43.0
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/: -
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1200
TD travel mm: 0.4...1.2
mm: (0.1...1.5)

electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press hPa: 1200
TD travel mm: 1.4...1.8
mm: (0.9...2.3)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 1.9...2.7
mm: (1.6...3.0)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 1.9...2.7
mm: (1.6...3.0)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1200
Supply-pump pressure bar: 4.7...5.3

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6.3...6.9

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 6.9...7.5

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.6...83.3
(26.6...98.3)
2nd speed 1/min: 1250

Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.5...138.8
(40.5...153.8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 700
LDA-stroke mm: 6.7
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 76.0...77.0
(73.0...80.0)

2nd speed 1/min: 1480
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.0...7.0
-

3rd speed 1/min: 1400
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 37.0...43.0
(34.0...46.0)

4th speed 1/min: 1350
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 56.0...64.0
(54.0...66.0)

5th speed 1/min: 1250
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 83.0...86.0
(81.0...88.0)

6th speed 1/min: 1000
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 77.0...80.0
(75.0...82.0)

7th speed 1/min: 700
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 81.0...82.0
(78.0...85.0)

8th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 60.5...61.5
(57.5...64.5)

9th speed 1/min: 500

Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 62.5...65.5
1000S.: (60.5...67.5)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Charge press. hPa: 1200
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 325
Charge press. hPa: -
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.0...12.0
1000S.: (5.0...15.0)

Dispersion cm³/: 5.0
1000S.: -

2nd speed 1/min: 420
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 0.0...3.0
1000S.: -

3rd speed 1/min: 350
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 2.0...8.0
1000S.: (0.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 110.0...170.0
1000S.: -

2nd speed 1/min: 230
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 50.0...90.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: K-OT
MS	mm: 0.9...1.3
SVS max.	mm: 3.5
LDA stroke	mm: 6.7
XK	mm: 21.8...23.8
XL	mm: 10.2...13.6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7,2 T2
Edition : 10.12.91
replaces : 08.10.91
Calibrating oil : ISO 4113

Injection pump : VE6/12F1200R307-2
Type number : 0 460 426 182

Customer-specific information
Customer : MAN

Engine : D 0826 LF 05

Power KW: 140

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 1000
Setting value mm: 1.70...2.10

Supply-pump pressure

007

Speed 1/min: 800
Charge press hPa: 1000
Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 92.50...93.50
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 56.50...57.50

Low-idle speed regulation

Speed 1/min: 300
Charge press hPa: -
Del. quantity cm³/
1000S.: 6.50...13.50
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1280
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 62.00...68.00

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/: -
mind 1000S.: 60.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm³/
difference 1000S.: 16.0...24.0 *
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
Charge press hPa: 1000
TD-travel
difference mm: 0.00...0.20 *

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
 Charge press hPa: 1000
 TD travel mm: 1.60...2.10
 mm: (1.20...2.60)
 2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 3.90...4.70
 mm: (3.60...5.00)
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 4.50...5.30
 mm: (4.20...5.60)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.20...4.80
 2nd speed 1/min: 800
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.10...6.70
 3rd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.90...8.50

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow quantity cm3/10s: 41.60...83.30
 (26.60...98.30)
 2nd speed 1/min: 1200
 Charge press. hPa: 1000
 Overflow quantity cm3/10s: 55.50...138.80
 (40.50...153.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500*
 Charge-air pressure-setting point hPa: 350
 LDA-stroke mm: 7.5
 Del. quantity cm3/1000S.: 81.00...82.00
 (79.00...84.00)
 2nd speed 1/min: 1450
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 0.00...3.0
 -
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 0.00...15.00
 -
 4th speed 1/min: 1300
 Charge press. hPa: 1000

Del. quantity cm3/1000S.: 15.00...55.00
 -
 5th speed 1/min: 1280
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 62.00...68.00
 (60.50...69.50)
 6th speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 85.00...90.00
 (83.50...91.50)
 7th speed 1/min: 1000
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 92.50...93.50
 (90.50...95.50)
 8th speed 1/min: 800
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 91.00...96.00
 (89.50...97.50)
 9th speed 1/min: 600
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 97.00...102.00
 (95.5...103.50)
 10th speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm3/1000S.: 56.50...57.50
 (54.50...59.50)
 11th speed 1/min: 500
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 99.00...108.00
 (97.50...109.50)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 0.00...3.00
 -

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
 Del. quantity cm3/1000S.: 6.50...13.50
 (4.50...15.50)
 2nd speed 1/min: 400
 Del. quantity cm3/1000S.: 0.00...3.00
 -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Inj.-qty. cm3/difference 1000S.: 10.0...12.0 #
 -
 2nd speed 1/min: 1000
 Charge press. hPa: 1000

Inj.-qty. cm³/: 2.00...8.00 '
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : 0.00...1.50 '
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: 1000
Supply pump-
pressure : 0.00...0.20 #

Automatic starting fuel delivery:

1st speed 1/min: 220
Charge press. hPa: -
Del. quantity cm³/: 75.00...125.00
1000S.: -

2nd speed 1/min: 380
Charge press. hPa: -
Del. quantity cm³/: 55.00...85.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : -
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: -
MS	mm: 0.8...1.2
SVS max.	mm: 4.5
LDA stroke	mm: 7.5

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W80
 Edition : 09.12.91
 replaces : 22.05.91
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R419
 Type number : 0 460 426 184
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA 590A

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.25
 mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.60...2.00
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 85.00...86.00

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 5.0
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 59.50...60.50

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 5.0
 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 12.00...16.00

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 75.00...81.00

Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 80.00...160.00
 mind 1000S.: 80.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
7. Rotacao 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.8...1.6
mm: (0.5...1.9)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 450*
TD travel mm: 2.0...3.0
mm: (1.8...3.2)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 230
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.00...67.00
1000s.: (62.50...70.50)

2nd speed 1/min: 1480
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: -

3rd speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000s.: -

5th speed 1/min: 1325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...81.00
1000s.: (72.00...84.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.5...88.5
1000s.: (84.00...90.00)

10th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 87.00...90.00
1000s.: (85.00...92.00)

12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 85.00...86.00
1000S.: (82.50...88.50)
18th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.50...60.50
1000S.: (56.00...64.00)
20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 93.50...101.5
1000S.: -

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (9.00...19.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 460
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...160.00
1000S.: -

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...160.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 0.7...1.1
LDA stroke mm: 7.0

Remarks:

: C.D.C. #391 8991

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

* Unscrew KSB ball valve 2 mm

Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W82
Edition : 09.12.91
replaces : 22.05.91
Calibrating oil : ISO-4113

Injection pump : VE6/12F125DR419-1
Type number : 0 460 426 186
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA 590A

Power KW: 118
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.25
mm: $\pm 0,02(0,006)$

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.60...2.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 85.00...86.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 59.50...60.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 12.00...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 75.00...81.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 80.00...160.00
mind 1000S.: 80.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
7.Rotacao 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.8...1.6
mm: (0.5...1.9)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 450*
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 230
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 66.00...67.00
1000S.: (62.50...70.50)

2nd speed 1/min: 1480
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S.: -

3rd speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 15.00...45.00
1000S.: -

5th speed 1/min: 1325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 75.00...81.00
1000S.: (72.00...84.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 85.50...88.50
1000S.: (84.00...90.00)

10th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 87.00...90.00
1000S.: (85.00...92.00)

12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...86.00
1000S.: (82.50...88.50)

18th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.50...60.50
1000S.: (56.00...64.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
1000S.: (93.5...101.5)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (9.00...19.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 460
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...160.00
1000S.: -

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 50.00...80.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...160.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 0.7...1.1
LDA stroke mm: 7.0

Remarks:
: C.D.C. # 391 3442
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T9
 Edition : 06.12.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/11F1350R434
 Type number : 0 460 426 189
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0826 OH

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 110

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.20
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Setting value mm: 2.10...2.50
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Setting value bar: 5.50...6.10
 Shutoff
 electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000
 Del. quantity cm³/
 1000S.: 70.50...71.50
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
 Del. quantity cm³/
 1000S.: 7.00...13.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1390
 Del. quantity cm³/
 1000S.: 51.00...57.00
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 60.00...140.00
 mind 1000S.: 60.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
 TD travel mm: 3.10...3.90
 mm: (2.90...4.10)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1000
 TD travel mm: 2.10...2.50
 mm: (1.60...3.00)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 900

TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 3.30...3.90
bar: (3.00...4.20)

Shutoff
electromagnet Volt: 24

2nd speed 1/min: 1000
Supply-pump pressure bar: 5.50...6.10
bar: (5.20...4.60)

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1300
Supply-pump pressure bar: 7.40...8.00
bar: (7.10...8.30)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 24

Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1300
Shutoff
electromagnet Volt: 24

Overflow quantity cm³/10s: 55.60...139.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1520
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

4th speed 1/min: 1450
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1390
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 51.00...57.00
1000S.: (48.50...59.50)

9th speed 1/min: 1300
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 66.50...69.50
1000S.: (65.00...71.00)

11th speed 1/min: 800
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 65.00...69.00
1000S.: (63.50...70.50)

12th speed 1/min: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 70.50...71.50
1000S.: (68.50...73.50)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 62.00...66.00
1000S.: (60.50...67.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

Dispersion cm³/: 6.0
1000S.: (6.5)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 75.00...145.00
1000S.: (75.00...145.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...140.00
1000S.: (60.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS	mm: 0.6...1.0
SVS max.	mm: 3.6
XK	mm: 17.0...19.0
XL	mm: 12.6...16.0

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T7
Edition : 06.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/11F1350R438
Type number : 0 460 426 191
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 GF

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.20
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.10...2.50
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 70.50...71.50
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...13.00
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1390
Del. quantity cm³/
1000S.: 51.00...57.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...140.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 3.00...3.80
mm: (2.70...4.10)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
TD travel mm: 2.10...2.50
mm: (1.60...3.00)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900

TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 3.30...3.90
bar: (3.00...4.20)

Shutoff
electromagnet Volt: 24

2nd speed 1/min: 1000
Supply-pump pressure bar: 5.50...6.10
bar: (5.20...4.60)

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1300
Supply-pump pressure bar: 7.50...8.10
bar: (7.20...8.40)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1300
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1470
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

4th speed 1/min: 1420
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1390
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 51.00...57.00
1000S.: (48.50...59.50)

9th speed 1/min: 1300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 66.50...69.50
1000S.: (65.00...71.00)

11th speed 1/min: 800
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...69.00
1000S.: (63.50...70.50)

12th speed 1/min: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.50...71.50
1000S.: (68.50...73.50)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 62.00...66.00
1000S.: (60.50...67.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

Dispersion cm³/: 6.0
1000S.: (6.5)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 75.00...145.00
1000S.: (75.00...145.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...70.00
1000S.: (30.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...140.00
1000S.: (60.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS	mm: 0.6...1.0
SVS max.	mm: 3.0

Remarks:

⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T8
Edition : 06.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/11F1350R438-1
Type number : 0 460 426 192
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 OH

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.20
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.10...2.50

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.50...6.10

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 70.50...71.50
Dispersion cm³/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...13.00
Del. quantity cm³/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1390
Del. quantity cm³/
1000S.: 51.00...57.00

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 60.00...140.00
1000S.: 60.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 3.00...3.80
mm: (2.70...4.10)
3rd speed 1/min: 1000
TD travel mm: 2.10...2.50
mm: (1.60...3.00)
4th speed 1/min: 900
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3.30...3.90
bar: (3.00...4.20)
2nd speed 1/min: 1000
Supply-pump
pressure bar: 5.50...6.10
bar: (5.20...4.60)
3rd speed 1/min: 1300
Supply-pump
pressure bar: 7.50...7.8.1
bar: (7.20...8.40)

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1300
Overflow quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1470
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)
4th speed 1/min: 1420
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)
5th speed 1/min: 1390
Del. quantity cm³/: 51.00...57.00
1000S.: (48.50...59.50)
9th speed 1/min: 1300
Del. quantity cm³/: 66.50...69.50
1000S.: (65.00...71.00)
11th speed 1/min: 800
Del. quantity cm³/: 65.00...69.00
1000S.: (63.50...70.50)
12th speed 1/min: 1000
Del. quantity cm³/: 70.50...71.50
1000S.: (68.50...73.50)
20th speed 1/min: 600
Del. quantity cm³/: 62.00...66.00
1000S.: (60.50...67.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)
Dispersion cm³/: 6.0
1000S.: (6.5)
2nd speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/: 75.00...145.00
1000S.: (75.00...145.00)

2nd speed 1/min: 450
Del. quantity cm³/: 30.00...70.00
1000S.: (30.00...70.00)

4th speed 1/min: 100
Del. quantity cm³/: 60.00...140.00
1000S.: (60.00...140.00)

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: KOT
MS mm: 0.6...1.0
SVS max. mm: 3.0

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7,2 T7
Edition : 10.12.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE6/12F1200R307-3
Type number : 0 460 426 194

Customer-specific information
Customer : MAN

Engine : D 0826 LF 05

Power KW: 140

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2,90...3,30

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 7.90...8.50

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 92.50...93.50
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 56.50...57.50

Low-idle speed regulation

Speed 1/min: 300
Charge press hPa: -
Del. quantity cm3/
1000S.: 6.50...13.50
Del. quantity cm3/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1280
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 62.00...68.00

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind 1000S.: 60.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 13.0...21.0 *
TD-travel dif.measurement
correctore anticipo iniezione (SV)
1.Speed 1/min: 1000
Charge press hPa: 1000
TD-travel
difference mm: 0.30...0.50 *

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
 Charge press hPa: 1000
 TD travel mm: 0.30...1.10
 mm: (0.00...1.40)

2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.90...3.30
 mm: (2.40...3.80)

3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 3.80...4.60
 mm: (3.50...4.90)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.20...4.80

2nd speed 1/min: 800
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.10...6.70

3rd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.90...8.50

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow quantity cm3/10s: 41.60...83.30
 (26.60...98.30)

2nd speed 1/min: 1200
 Charge press. hPa: 1000
 Overflow quantity cm3/10s: 55.50...138.80
 (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 500*
 Charge-air pressure-setting point hPa: 350
 LDA-stroke mm: 7.5
 Del. quantity cm3/1000S.: 81.00...82.00
 (79.00...84.00)

2nd speed 1/min: 1450
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 0.00...3.0

3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 0.00...15.00

4th speed 1/min: 1300
 Charge press. hPa: 1000

Del. quantity cm3/1000S.: 15.00...55.00

5th speed 1/min: 1280
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 62.00...68.00
 (60.50...69.50)

6th speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 85.00...90.00
 (83.50...91.50)

7th speed 1/min: 1000
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 92.50...93.50
 (90.50...95.50)

8th speed 1/min: 800
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 91.00...96.00
 (89.50...97.50)

9th speed 1/min: 600
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 97.00...102.00
 (95.5...103.50)

10th speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm3/1000S.: 56.50...57.50
 (54.50...59.50)

11th speed 1/min: 500
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 99.00...108.00
 (97.50...109.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm3/1000S.: 0.00...3.00

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
 Del. quantity cm3/1000S.: 6.50...13.50
 (4.50...15.50)

2nd speed 1/min: 400
 Del. quantity cm3/1000S.: 0.00...3.00

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Inj.-qty. cm3/ difference 1000S.: 7.50...9.50 #

2nd speed 1/min: 1000
 Charge press. hPa: 1000

Inj.-qty. cm³/: 2.00...8.00 '
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : 0.00...1.40 '
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: 1000
Supply pump-
pressure : 0.00...0.20 #

Automatic starting fuel delivery:

1st speed 1/min: 220
Charge press. hPa: -
Del. quantity cm³/: 75.00...125.00
1000S.: -

2nd speed 1/min: 380
Charge press. hPa: -
Del. quantity cm³/: 55.00...85.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : -
Rated voltage : -

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: -
MS mm: 0.8...1.2
SVS max. mm: 4.5
LDA stroke mm: 7.5

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 5,9 K
 Edition : 09.12.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1000R369-2
 Type number : 0 460 426 196
 Customer Part-No. :

Customer-specific information
 Customer : CASE

Engine : 6T 590
 Speed 1/min: 1000

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0,3
 (from BDC): +0,02(0,04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0,02(0,06)

Outlet : 0

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
 Setting value mm: 3.00...3.40
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
 Setting value bar: 3.30...3.90
 Shutoff
 electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 850
 Del. quantity cm³/
 1000S.: 66.5...67.5
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 6.00...12.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1040
 Del. quantity cm³/
 1000S.: 53.00...59.00
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 60.00...120.00
 mind 1000S.: 60.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 TD travel mm: 4.60...5.40
 mm: (4.30...5.70)
 Shutoff
 electromagnet Volt: 24

3rd speed 1/min: 750
 TD travel mm: 3.00...3.40
 mm: (2.50...3.90)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 500
 TD travel mm: 1.20...2.00
 mm: (0.90...2.30)
 Shutoff
 electromagnet Volt: 24

 Supply-pump pressure characteristic:

 1st speed 1/min: 500
 Supply-pump
 pressure bar: 2.30...2.90
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 750
 Supply-pump
 pressure bar: 3.30...3.90
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1000
 Supply-pump
 pressure bar: 4.50...5.10
 Shutoff
 electromagnet Volt: 24

 Overflow quantity at overflow valve:

 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

 Delivery-quant. and breakaway char.:

 2nd speed 1/min: 1120
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: -
 3rd speed 1/min: 1060
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 25.00...55.00
 1000s.: -
 5th speed 1/min: 1040
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 53.00...59.00
 1000s.: (50.00...62.00)

9th speed 1/min: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 63.50...66.50
 1000s.: (62.00...68.00)
 10th speed 1/min: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 64.00...67.00
 1000s.: (62.00...69.00)
 Shutoff
 electromagnet Volt: 24
 12th speed 1/min: 850
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 66.50...67.50
 1000s.: (64.00...70.00)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 40.50...48.50
 1000s.: (38.50...50.50)

 Mech. shutoff:

 Electr. shutoff:

 1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 Shutoff
 electromagnet volt: -

 Idle delivery:

 1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 6.00...12.00
 1000s.: (4.00...14.00)
 Dispersion cm³/: 5.5
 1000s.: (7.0)
 2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...4.00
 1000s.: -

 Automatic starting fuel delivery:

 1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.00...130.00
 1000s.: -
 2nd speed 1/min: 240
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 5.00...35.00
 1000s.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...120.00
1000s.: -

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 1.5
XK	mm: 18.8...20.8
XL	mm: 6.8...10,2

Remarks:

⋮

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 5,9 K1
Edition : 09.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369-3
Type number : 0 460 426 197
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 6 T 590
Speed 1/min: 1000

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 42.00...48.00
Electronically : 40.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0,02(0,04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0,02(0,06)$

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

E02

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.60...4.20
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm³/
1000S.: 73.0...74.0

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 500
Del. quantity cm³/
1000S.: 4.00...10.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1045
Del. quantity cm³/
1000S.: 60.00...66.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...130.00
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
TD travel mm: 4.80...5.60
mm: (4.50...5.90)

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 750
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 24

4th speed 1/min: 500
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 2.60...3.20

Shutoff
electromagnet Volt: 24

2nd speed 1/min: 750
Supply-pump pressure bar: 3.60...4.20

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1000
Supply-pump pressure bar: 4.60...5.20

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24

Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1000
Shutoff

electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1170
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: -

3rd speed 1/min: 1100
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 25.00...45.00
1000S.: -

5th speed 1/min: 1045
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 60.00...66.00
1000S.: (57.00...69.00)

9th speed 1/min: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.50...73.50
1000S.: (69.00...75.00)

10th speed 1/min: 750
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 74.50...77.50
1000S.: (72.50...79.50)

12th speed 1/min: 900
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 73.00...74.00
1000S.: (70.50...76.5)

20th speed 1/min: 500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 58.50...66.50
1000S.: (56.50...68.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 500
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 4.00...10.00
1000S.: (2.00...12.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 540
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 80.00...140.00
1000S.: -

2nd speed 1/min: 250
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 30.00...60.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...130.00

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 1.2

Remarks:

⋮

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P
Edition : 02.12.91
replaces : 18.07.89
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R317
Type number : 0 460 484 020
Customer Part-No. :

Customer-specific information
Customer : RNJR

Engine : F8Q - A06

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

E05

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.50...5.10
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.60...32.60
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 23.00...29.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00

KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 TD-travel
 difference mm: 0.30...0.50
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Supply pump
 pressure
 difference bar: 0.20...0.60
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

 Inspection-pump test specifications
 Test specifications in parentheses

 Timing-device characteristic:

 2nd speed 1/min: 2000
 TD travel mm: 7.40...8.20
 mm: (7.10...8.50)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 4.10...4.50
 mm: (3.60...5.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 TD travel mm: 1.70...2.50
 mm: (1.40...2.80)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 8th speed 1/min: 500
 TD travel mm: 1.90...4.30 B
 mm: (1.90...4.30)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 310
 TD travel mm: 0.60...3.00 A
 mm: (0.60...3.00)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

 Supply-pump pressure characteristic:

 1st speed 1/min: 750
 Supply-pump
 pressure bar: 3.10...3.70
 bar: (2.80...4.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4.50...5.10
 bar: (4.20...5.40)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Supply-pump
 pressure bar: 6.40...7.00
 bar: (6.10...7.30)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

 Overflow quantity at overflow valve:

 1st speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

 Delivery-quant. and breakaway char.:

 2nd speed 1/min: 2950
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)
 3rd speed 1/min: 2650

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...15.00
 1000S.: (6.00...16.00)
 5th speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.00...29.00
 1000S.: (22.00...30.00)
 9th speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.20...33.20
 1000S.: (30.70...33.70)
 10th speed 1/min: 2000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.60...32.60
 1000S.: (20.10...33.10)
 11th speed 1/min: 1625
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.70...32.70
 1000S.: (28.90...33.50)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.60...32.60
 1000S.: (30.80...33.40)
 20th speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.30...33.30
 1000S.: (30.00...33.60)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:
 1st speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...10.50
 1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 9.00...13.00
 difference 1000S.: (9.00...13.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Inj.-qty. cm³/: 2.00...8.00
 difference 1000S.: (2.00...8.00)

TD-travel dif.measurement:

correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : 0.30...0.50
 difference mm: (0.30...0.50)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250

TD-travel : 0.20...0.60
difference mm: (0.10...0.70)
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : 0.20...0.60
difference bar: (0.20...0.60)
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000s.: (45.00...75.00)

2nd speed 1/min: 310
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000s.: (15.00...45.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000s.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.1...1.5
SVS max. mm: 1.8
XK mm: 18.7...20.7
XL mm: 11.2...14.6

Remarks:

* Unscrew KSB ball valve 2 mm
:

A = KSB adjustment point

B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P1
Edition : 03.12.91
replaces : 17.07.89
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R317-2
Type number : 0 460 484 030
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : F8Q - 706

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure

EO9

Speed 1/min: 1250
Setting value bar: 4.50...5.10
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: -
Dispersion cm3/: 2.5
1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 22.00...28.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00

KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: 0.30...0.50

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: 0.10...0.30

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
8th speed 1/min: 500
TD travel mm: 1.90...4.30 B
mm: (1.90...4.30)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
9th speed 1/min: 310
TD travel mm: 0.60...3.00 A
mm: (0.60...3.00)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.10...3.70
bar: (2.80...4.00)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.50...5.10
bar: (4.20...5.40)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.40...7.00
bar: (6.10...7.30)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2250

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000s.: (0.00...5.00)

3rd speed 1/min: 2650
KSB/AFB

valve Volt: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 7.00...15.00
 1000S.: (6.00...16.00)
 5th speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 22.00...28.00
 1000S.: (21.00...29.00)
 9th speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 31.50...33.50
 1000S.: (30.20...34.80)
 10th speed 1/min: 2000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 30.30...32.30
 1000S.: (29.00...33.60)
 11th speed 1/min: 1625
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 29.70...32.70
 1000S.: (28.90...33.50)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 31.00...32.00
 1000S.: (29.20...33.80)
 20th speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 30.10...33.10
 1000S.: (29.30...33.90)

Mech. shutoff:

E11

Electr. shutoff:

1st speed 1/min: 410
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 6.50...10.50
 1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm3/ : 7.70...9.70
 difference 1000S.: (7.70...9.70)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Inj.-qty. cm3/: 9.00...13.00
 difference 1000S.: (9.00...13.00)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1250
 Inj.-qty. cm3/: 2.00...8.00
 difference 1000S.: (2.00...8.00)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : 0.30...0.50
difference mm: (0.30...0.50)
KSB/AFB
valve Volt: -
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 0.20...0.60
difference mm: (0.10...0.70)
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)
KSB/AFB
valve Volt: -
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : 0.20...0.60
difference bar: (0.20...0.60)
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.3...5.7
MS	mm: 1.1...1.5
SVS max.	mm: 1.8
XK	mm: 18.7...20.7
XL	mm: 11.2...14.6

Remarks:

* Unscrew KSB ball valve 2 mm

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1.9 C4
Edition : 03.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2100R357
Type number : 0 460 484 031
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.A 1.9L.

Power KW: 45

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.10...3.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.50...36.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 2.00...3.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: 5.00...11.00
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: 0.30...0.50
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: 0.50...0.90
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700
TD travel mm: 5.00...5.80
mm: (4.70...6.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.10...3.50
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.00...1.80
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1850
Supply-pump
pressure bar: 7.10...7.70
bar: (6.90...7.90)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30
bar: (5.50...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Supply-pump
pressure bar: 4.50...5.10
bar: (4.30...5.30)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)
2nd speed 1/min: 1850
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (40.70...153.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...28.00
1000S.: (17.00...29.00)

9th speed 1/min: 1850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...34.00
1000S.: (30.80...35.20)

10th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.50...34.50
1000S.: (27.00...37.00)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...36.50
1000S.: (33.80...38.20)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.50...33.50
1000S.: (29.00...35.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...3.00
1000S.: (0.50...4.50)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...4.50
1000S.: (1.00...6.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250
Inj.-qty. cm³/: 5.00...11.00
difference 1000S.: (4.00...12.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/: 0.00...3.00
difference 1000S.: (0.00...3.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : 0.30...0.50
difference mm: (0.30...0.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 0.70...1.10
difference mm: (0.40...1.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : 0.50...0.90
difference bar: (0.30...1.10)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...38.00
1000S.: (18.00...38.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.2...1.5
XK	mm: 17.0...19.0
XL	mm: 10.6...14.0

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P9
Edition : 03.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R317-1
Type number : 0 460 484 032
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : F8Q - 706 CA

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure

E16

Speed 1/min: 1250
Setting value bar: 4.50...5.10
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00

KSB/AFB 11
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/ 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 22.00...28.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00

KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00

KSB/AFB
valve Volt: -

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 TD-travel
 difference mm: 0.30...0.50
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Supply pump
 pressure
 difference bar: 0.10...0.30
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 TD travel mm: 7.40...8.20
 mm: (7.10...8.50)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 4.10...4.50
 mm: (3.60...5.00)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 TD travel mm: 1.70...2.50
 mm: (1.40...2.80)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 8th speed 1/min: 500
 TD travel mm: 1.80...4.30 B
 mm: (1.80...4.30)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 310
 TD travel mm: 0.60...3.00 A
 mm: (0.60...3.00)

KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump
 pressure bar: 3.10...3.70
 bar: (2.80...4.00)

KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4.50...5.10
 bar: (4.20...5.40)

KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Supply-pump
 pressure bar: 6.40...7.00
 bar: (6.10...7.30)

KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2250

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

3rd speed 1/min: 2650
 KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...15.00
 1000S.: (6.00...16.00)
 5th speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 22.00...28.00
 1000S.: (21.00...29.00)
 9th speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.50...33.50
 1000S.: (30.20...34.80)
 10th speed 1/min: 2000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.30...32.30
 1000S.: (29.00...33.60)
 11th speed 1/min: 1625
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.70...32.70
 1000S.: (28.90...33.50)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...32.00
 1000S.: (29.20...33.50)
 20th speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.10...33.10
 1000S.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:
 1st speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...10.50
 1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 7.70...9.70
 difference 1000S.: (7.70...9.70)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Inj.-qty. cm³/: 9.00...13.00
 difference 1000S.: (9.00...13.00)
 KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1250
 Inj.-qty. cm³/: 2.00...8.00
 difference 1000S.: (2.00...8.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : 0.30...0.50
difference mm: (0.30...0.50)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 0.10...0.70
difference mm: (0.10...0.70)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):

1st speed 1/min: 1250
Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : 0.20...0.60
difference bar: (0.20...0.60)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.1...1.5
SVS max. mm: 1.8

Remarks:

* Unscrew KSB ball valve 2 mm

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1.4 A
Edition : 02.12.91
replaces : 08.11.89
Calibrating oil : ISO-4113

Injection pump : VE4/8F2450L331-2
Type number : 0 460 484 033
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 031.2

Power KW: 35.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm³/
1000S.: 24.80...25.80
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm³/
1000S.: 2.50...3.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2700
Del. quantity cm³/
1000S.: 12.00...16.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 32.00...82.00
mind 1000S.: 32.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm³/
difference 1000S.: 5.50...11.50
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: 0.60...0.80
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: 0.80... 1.20
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250
TD travel mm: 2.30...2.70
mm: (1.80...3.20)

electromagnet Volt: 12
2nd speed 1/min: 2250
TD travel mm: 6.70...7.50
mm: (6.40...7.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.60...4.20
bar: (3.40...4.40)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.90...5.50
bar: (4.70...5.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2250
Supply-pump
pressure bar: 7.70...8.30
bar: (7.50...8.50)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.80...98.30)

2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...138.00
(40.70...153.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2975
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (10.00...18.00)

8th speed 1/min: 2575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.50...26.50
1000S.: (15.50...27.50)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 23.00...25.00
1000S.: (21.80...26.20)

10th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.50...22.50
1000S.: (15.00...25.00)

12th speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.80...25.80
1000S.: (23.10...27.50)

20th speed 1/min: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 21.00...24.00
1000S.: (19.50...25.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.50...11.50
1000S.: (6.50...14.50)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...8.50
1000S.: (3.00...11.00)
Dispersion cm³/: 2.0
1000S.: (3.0)

Residual:

1. Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (1.00...5.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...5.00
1000S.: (1.50...6.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : 5.50...11.50
difference 1000S.: (4.50...12.50)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/ : 0.00...3.00
difference 1000S.: (0.00...3.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.60...0.80
difference mm: (0.60...0.80)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : 1.00...1.40
difference mm: (0.70...1.70)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 0.80...1.20
difference bar: (0.60...1.40)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200

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Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...80.00
1000S.: (30.00...80.00)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...30.00
1000S.: (10.00...30.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...82.00
1000S.: (32.00...82.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.2...1.6

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1.9 C2
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2000R401-1
Type number : 0 460 484 037
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.B 1.9L.

Power KW: 45

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.40...4.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm³/
1000S.: 34.30...35.30

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 430
Del. quantity cm³/
1000S.: 6.00...10.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2130
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...55.00
mind 1000S.: 35.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900
TD travel mm: 5.90...6.70
mm: (5.60...7.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.40...4.80
mm: (3.90...5.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750

TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3.70...4.30
bar: (3.50...4.50)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 6.10...6.70
bar: (5.90...6.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1900
Supply-pump
pressure bar: 7.00...7.60
bar: (6.80...7.80)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)
2nd speed 1/min: 1900
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (40.70...153.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

4th speed 1/min: 2150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...12.00
1000S.: (0.00...12.00)

5th speed 1/min: 2130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (1.00...23.00)

6th speed 1/min: 2110
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 17.00...29.00
1000S.: (12.00...34.00)

9th speed 1/min: 1900
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.70...33.70
1000S.: (30.50...34.90)

12th speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.50...35.50
1000S.: (32.80...37.20)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.20...28.20
1000S.: (23.70...29.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 430
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 430
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Dispersion cm³/: 2.0
1000S.: (3.0)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...64.00
1000S.: (30.00...64.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...30.00
1000S.: (10.00...30.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm3/: 35.00...55.00
1000S.: (35.00...55.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 1.1...1.5
XK mm: 17.0...19.0
XL mm: 13.1...16.5

Remarks:
:
:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P10
Edition : 04.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R317-4
Type number : D 460 484 043
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : F8Q - 706 CA

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.50...5.10
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 23.00...29.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00

KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: 0.30...0.50

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: 0.20...0.60

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
8th speed 1/min: 500
TD travel mm: 1.90...4.30 B
mm: (1.90...4.30)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
9th speed 1/min: 310
TD travel mm: 0.60...3.00 A
mm: (0.60...3.00)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.10...3.70
bar: (2.80...4.00)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.50...5.10
bar: (4.20...5.40)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.40...7.00
bar: (6.10...7.30)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 2250
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000s.: (0.00...5.00)

3rd speed 1/min: 2650
KSB/AFB
valve Volt: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...15.00
 1000S.: (6.00...16.00)
 5th speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.00...29.00
 1000S.: (22.00...30.00)
 9th speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.50...33.50
 1000S.: (30.20...34.80)
 10th speed 1/min: 2000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.30...32.30
 1000S.: (29.00...33.60)
 11th speed 1/min: 1625
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.70...32.70
 1000S.: (28.90...33.50)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...32.00
 1000S.: (29.20...33.80)
 20th speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.10...33.10
 1000S.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...10.50
 1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 7.70...9.70
 difference 1000S.: (7.70...9.70)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Inj.-qty. cm³/: 9.00...13.00
 difference 1000S.: (9.00...13.00)
 KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1250
 Inj.-qty. cm³/: 2.00...8.00
 difference 1000S.: (2.00...8.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : 0.30...0.50
difference mm: (0.30...0.50)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1250
TD-travel : 0.20...0.60
difference mm: (0.10...0.70)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1250

Supply pump-
pressure : 0.20...0.60
difference bar: (0.20...0.60)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.3...5.7

MS mm: 1.1...1.5

SVS max. mm: 1.8

Remarks:

* Unscrew KSB ball valve 2 mm

A = KSB adjustment point

B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P11
Edition : 04.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R317-5
Type number : 0 460 484 044
Customer Part-No. :

Customer-specific information
Customer : RNR

Engine : F8Q - 732

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.50...5.10
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 23.00...29.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00
KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: 0.30...0.50

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: 0.20...0.60

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
8th speed 1/min: 500
TD travel mm: 1.90...4.30 B
mm: (1.90...4.30)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
9th speed 1/min: 310
TD travel mm: 0.60...3.00 A
mm: (0.60...3.00)

KSB/AFB
valve Volt: 12

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Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.10...3.70
bar: (2.80...4.00)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.50...5.10
bar: (4.20...5.40)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.40...7.00
bar: (6.10...7.30)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2250

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000s.: (0.00...5.00)

3rd speed 1/min: 2650
KSB/AFB
valve Volt: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...15.00
 1000S.: (6.00...16.00)
 5th speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.00...29.00
 1000S.: (22.00...30.00)
 9th speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.50...33.50
 1000S.: (30.20...34.80)
 10th speed 1/min: 2000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.30...32.30
 1000S.: (29.00...33.60)
 11th speed 1/min: 1625
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.70...32.70
 1000S.: (28.90...33.50)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...32.00
 1000S.: (29.20...33.80)
 20th speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.10...33.10
 1000S.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -

Damper set qty.:

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LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...10.50
 1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 7.70...9.70
 difference 1000S.: (7.70...9.70)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Inj.-qty. cm³/: 9.00...13.00
 difference 1000S.: (9.00...13.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1250
 Inj.-qty. cm³/: 2.00...8.00
 difference 1000S.: (2.00...8.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : 0.30...0.50
difference mm: (0.30...0.50)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1250
TD-travel : 0.20...0.60
difference mm: (0.10...0.70)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):

1st speed 1/min: 1250
Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1250
Supply pump-
pressure : 0.20...0.60
difference bar: (0.20...0.60)

KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.1...1.5
SVS max. mm: 1.8

Remarks:

* Unscrew KSB ball valve 2 mm

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,9 K2
Edition : 06.12.91
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE4/8F2300R464
Type number : 0 460 484 052

Customer-specific information
Customer : FIAT TIPO/TEMPRA

Engine : M 705

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 5,9...6,3
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 5,5...6,1

Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 30,5...31,5

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: -

Low-idle speed regulation

Speed 1/min: 390
Del. quantity cm3/
1000S.: 8,0...12,0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2,5
1000S.: -

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
1000S.: 20,0...26,0

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: -
mind 1000S.: 37,0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: 6,0...12,0 *

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1500
TD-travel
difference mm: 1,0...1,2 *

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1,7...2,5
mm: (1,4...2,8)
electromagnet Volt: 12
2nd speed 1/min: 1500
TD travel mm: 5,9...6,3
mm: (5,4...6,8)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
TD travel mm: 8,6...9,4
mm: (8,3...9,7)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 2300
TD travel mm: 9,4...10,2
mm: (9,1...10,5)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 2,9...3,5

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump pressure bar: 5,5...6,1

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2300
Supply-pump pressure bar: 7,7...8,3

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41,6...83,3
(26,6...98,3)

2nd speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55,5...138,8
(40,5...153,8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0,0...1,6

2nd speed 1/min: 2650

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Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 2,0...10,0

3rd speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 20,0...26,0
(19,0...27,0)

4th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 31,3...33,7
(30,2...34,8)

5th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 30,8...33,2
(29,7...34,3)

6th speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 30,5...31,5
(28,7...33,3)

7th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 31,5...34,5
(30,0...36,0)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 390
Del. quantity cm³/1000S.: 0,0...3,0

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 390
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 8,0...12,0
(5,0...15,0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0,0...3,0

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³ difference 1000S.: 6,0...8,0 #

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : 0,1...0,3
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40,0...60,00
1000S.: -

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33,00...43,00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm: 3,2...3,4
KF mm: 5,3...5,7
MS mm: 1,3...1,7
XK mm: 17,0...19,0
XL mm: 10,5...13,9

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1.9 K11
Edition : 04.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R425-1
Type number : 0 460 484 054
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD9AL

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 0.3
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 30.00...31.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.50...3.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 42.00...68.00
mind 1000S.: 42.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 3.50...13.50

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correctore anticipo iniezione (SV)

1.Speed 1/min: 1250
TD-travel
difference mm: 0.90...1.10

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.70...7.50
mm: (6.40...7.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3.30...3.90
bar: (3.10...4.10)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30
bar: (5.50...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 8.20...8.80
bar: (8.00...9.00)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...152.90)
Timing valve Volt: 12

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2900
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (7.00...15.00)

8th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...21.00
1000S.: (13.00...23.00)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...34.50
1000S.: (31.30...35.70)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...31.00
1000S.: (28.30...32.70)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...33.00
1000S.: (28.50...34.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 2200
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...8.50
1000S.: (3.50...11.50)

High Idle:

1st speed 1/mi: 475

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...10.50
1000S.: (5.50...13.50)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250
Inj.-qty. cm³/: 3.50...13.50
difference 1000S.: (3.50...13.50)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/: 2.00...8.00
difference 1000S.: (2.00...8.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : 0.90...1.10
difference mm: (0.90...1.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 2.00...3.00
difference mm: (1.90...3.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250

Supply pump-
pressure : 1.20...1.80
difference bar: (1.10...1.90)

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 225
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...71.00
1000S.: (37.00...71.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...68.00
1000S.: (42.00...68.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 1.2...1.6

Remarks:

:
:
:
Overflow restriction 0.55 mm - Part No. ..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 2.4 S11
Edition : 09.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2200L336-3
Type number : 0 460 485 006
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 074.3 (2.4L.)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 3.40...3.80
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 5.70...6.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.50...36.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (2.0)

Residual Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 4.00...5.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Del. quantity cm3/
1000S.: 10.00...14.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...61.00
mind 1000S.: 35.00

KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: 6.50...12.50
KSB/AFB
valve Volt: 12

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1500
 TD-travel
 difference mm: 0.60...0.80
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 TD travel mm: 5.70...6.50
 mm: (5.40...6.80)

KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 TD travel mm: 3.40...3.80
 mm: (2.90...4.30)

KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 TD travel mm: 0.70...1.50
 mm: (0.40...1.80)

KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 500
 TD travel mm: 2.30...2.70
 mm: (1.50...3.50)

KSB/AFB
 valve Volt: -

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Supply-pump
 pressure bar: 4.40...5.00
 bar: (4.20...5.20)

KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply-pump
 pressure bar: 5.70...6.30
 bar: (5.50...6.50)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2200
 Supply-pump
 pressure bar: 7.60...8.20
 bar: (7.40...8.40)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 500
 Supply-pump
 pressure bar: 4.70...5.90
 bar: (4.50...6.10)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (27.80...97.30)

2nd speed 1/min: 2200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...138.90
 quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2700
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 0.00...6.00
 1000S.: (0.00...6.00)

5th speed 1/min: 2525
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 10.00...14.00
 1000S.: (8.00...16.00)

8th speed 1/min: 2425
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 18.00...28.00
1000S.: (17.00...29.00)

9th speed 1/min: 2200

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 30.00...32.00
1000S.: (28.80...33.20)

12th speed 1/min: 1250

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 35.50...36.50
1000S.: (33.80...38.20)

15th speed 1/min: 750

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 32.00...35.00
1000S.: (30.50...36.50)

20th speed 1/min: 400

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 32.50...37.50
1000S.: (30.00...40.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

KSB/AFB
valve Volt: 12

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 450

F14

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...8.50
1000S.: (2.50...13.50)

Residual:

1. Rotacao 1/min: 550

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 4.00...6.00
1000S.: (3.00...7.00)

2nd speed 1/min: 500

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 5.00...7.00
1000S.: (3.50...8.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1500

Inj.-qty. cm³/: 6.50...12.50#
difference 1000S.: (5.50...13.50)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

5th speed 1/min: 1500

Inj.-qty. cm³/: 2.00...8.00*
difference 1000S.: (2.00...8.00)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1500

TD-travel : 0.60...0.80#
difference mm: (0.60...0.80)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1500

TD-travel : 0.70...1.10*
difference mm: (0.30...1.50)

KSB/AFB
valve Volt: 12

3rd speed 1/min: 1500

Supply pump-
pressure : 0.50...0.90*
difference bar: (0.30...1.10)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
KSB/AFB
valve Volt: 12
Timing valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...69.00
1000S.: (35.00...69.00)

2nd speed 1/min: 380
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...61.00
1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.5...5.9
MS mm: 1.2...1.6

Remarks:

:
Overflow restriction 0.55 mm - Part No.
..303

On initial measurement, screw in
residual-quantity adjusting, screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 01
Edition : 09.12.91
replaces : 01.02.89
Calibrating oil : ISO-4113
Injection pump : VE4/9F2350R309-1
Type number : 0 460 494 247
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 740

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1125
Setting value mm: 2.60...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1125

F16

Setting value bar: 4.20...4.80
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1125
Del. quantity cm3/
1000S.: 36.0...37.0

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 6.0...10.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2,5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.00...6.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
1000S.: 20.00...26.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 52.00...92.00
mind 1000S.: 52.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1125
Inj.-qty. cm3/
difference 1000S.: 16.70...20.70 *

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1125

TD-travel
difference mm: 0.90...1.10 *
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.10...7.90
mm: (6.80...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1125
TD travel mm: 2.60...3.00
mm: (2.10...3.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.10...3.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1125
Supply-pump
pressure bar: 4.20...4.80

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: -

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...10.50
1000S.: (1.50...11.50)

5th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...26.00
1000S.: (19.00...27.00)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.30...37.30
1000S.: (34.00...38.60)

10th speed 1/min: 1750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.50...36.50
1000S.: (33.20...37.80)

12th speed 1/min: 1125
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000S.: (34.20...38.80)

20th speed 1/min: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.10...37.10
1000S.: (33.30...37.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...12.50
1000S.: (6.50...14.50)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...6.00
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1125
Inj.-qty. cm³/ : 10.0...12.0 #
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1125
Inj.-qty. cm³/ : 2.00...8.00 '
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1125
TD-travel : 0.80...1.40 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1125
Supply pump-
pressure : 0.10...0.30 #
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: -

2nd speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 52.00...92.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.3...1.7
SVS max. mm: 2.3
XK mm: 17.0...19.0
XL mm: 8.7...12.1

Remarks:

:
:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 02
Edition : 09.12.91
replaces : 01.02.89
Calibrating oil : ISO-4113
Injection pump : VE4/9F2350R309-2
Type number : D 460 494 251
Customer Part-No. :

Customer-specific information
Customer : RNR

Engine : J8S - 740

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1125
Setting value mm: 2.60...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1125

Setting value bar: 4.20...4.80
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1125
Del. quantity cm3/
1000S.: 36.0...37.0

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 6.0...10.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2,5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.00...6.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
1000S.: 20.00...26.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 52.00...92.00
mind 1000S.: 52.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1125
Inj.-qty. cm3/
difference 1000S.: 16.70...20.70 *
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1125

TD-travel
difference mm: 0.90...1.10 *
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.10...7.90
mm: (6.80...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1125
TD travel mm: 2.60...3.00
mm: (2.10...3.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.10...3.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1125
Supply-pump
pressure bar: 4.20...4.80

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: -

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...10.50
1000S.: (1.50...11.50)

5th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...26.00
1000S.: (19.00...27.00)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.30...37.30
1000S.: (34.00...38.60)

10th speed 1/min: 1750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.50...36.50
1000S.: (33.20...37.80)

12th speed 1/min: 1125
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000S.: (34.20...38.80)

20th speed 1/min: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.10...37.10
1000S.: (33.30...37.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...12.50
1000S.: (6.50...14.50)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...6.00
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1125
Inj.-qty. cm³/ : 10.0...12.0 #
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1125
Inj.-qty. cm³/ : 2.00...8.00 '
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1125
TD-travel : 0.80...1.40 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1125
Supply pump-
pressure : 0.10...0.30 #
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: -

2nd speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 52.00...92.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.3...5.7
MS	mm: 1.3...1.7
SVS max.	mm: 2.3
XK	mm: 17.0...19.0
XL	mm: 8.7...12.1

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1.6 X17
 Edition : 09.12.91
 replaces : 18.02.91
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2250R328-5
 Type number : 0 460 494 267
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 086T-1.6 LLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value mm: 3.00...3.40
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 750
 Setting value bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 750
 Del. quantity cm3/
 1000S.: 42.00...43.00

Shutoff
 electromagnet Volt: 12
 Dispersion cm3/: 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
 Del. quantity cm3/
 1000S.: 26.50...27.50

Shutoff
 electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 615
 Del. quantity cm3/
 1000S.: 4.00...5.00

Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
 Charge press hPa: 750
 Del. quantity cm3/
 1000S.: 13.00...17.00

Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm3/: 35.00...85.00
 mind 1000S.: 35.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: -
 Inj.-qty. cm3/
 difference 1000S.: 8.50...12.50
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: 0.60...0.80
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 750
TD travel mm: 6.40...7.20
mm: (6.10...7.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 3.00...3.40
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 750
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 7.00...7.80
mm: (6.70...8.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 750
Supply-pump
pressure bar: 3.30...3.90
bar: (3.10...4.10)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 4.90...5.50
bar: (4.70...5.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump
pressure bar: 7.70...8.30
bar: (7.50...8.50)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 900*
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 5.5
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 33.00...34.00
1000s.: (30.50...36.50)

2nd speed 1/min: 2650
Charge press. hPa: 750
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2525
Charge press. hPa: 750
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000s.: (11.00...19.00)

8th speed 1/min: 2425
Charge press. hPa: 750
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 26.50...36.50
1000s.: (25.50...37.50)

9th speed 1/min: 2250
Charge press. hPa: 750
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 36.30...38.30
1000s.: (35.10...39.50)

12th speed 1/min: 1500
Charge press. hPa: 750
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 42.00...43.00
1000s.: (40.30...44.70)

16th speed 1/min: 500

Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 26.00...31.00
1000H.: (23.50...33.50)
18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.50...27.50
1000S.: (24.00...30.00)
20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...37.00
1000S.: (32.50...38.50)
21th speed 1/min: 400
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.50...35.50
1000S.: (27.00...38.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 465
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (7.50...18.50)

High Idle:

1st speed 1/mi: 515
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (8.00...18.00)

Residual:

1. Rotacao 1/min: 615
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 4.00...5.00
1000S.: (1.50...7.50)
2nd speed 1/min: 565
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...7.50
1000S.: (3.00...10.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: 8.50...12.50#
difference 1000S.: (6.50...14.50)
Shutoff

electromagnet Volt: 12
5th speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: 0.00...3.00'
difference 1000S.: (0.00...3.00)
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : 0.60...0.80#
difference mm: (0.60...0.80)
Shutoff

electromagnet Volt: 12
4th speed 1/min: 1250
TD-travel : 0.90...1.30'
difference mm: (0.60...1.60)
Shutoff

electromagnet Volt: 12
4th speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : 0.60...1.00'
difference bar: (0.40...1.20)
Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: K1
KF	mm: 5.6...6.0
MS	mm: 1.2...1.6
SVS max.	mm: 3.1
LDA stroke	mm: 5.5
XK	mm: 17.0...19.0
XL	mm: 10.3...13.7

Remarks:

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* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Overflow restriction 0.55 mm - Part No. ..303

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS 2.0 B
Edition : 10.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2200R412
Type number : 0 460 494 271
Customer Part-No. :

Customer-specific information
Customer : NISSAN

Engine : LD 20 II - E

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.00
Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 3.30...3.70
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.10...5.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 2200
Del. quantity cm3/
1000S.: 33.00...34.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 12.00...18.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 48.00...52.00
mind 1000S.: 48.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 900
Inj.-qty. cm3/
difference 1000S.: 8.60...12.60
KSB/AFB
valve Volt: 12

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 900
 TD-travel
 difference mm: 0.70...0.90
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
 TD travel mm: 6.00...6.80
 mm: (5.70...7.10)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 3rd speed 1/min: 1200
 TD travel mm: 3.30...3.70
 mm: (2.80...4.20)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 4th speed 1/min: 900
 TD travel mm: 1.50...2.30
 mm: (1.20...2.60)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 9th speed 1/min: 2200
 TD travel mm: 7.70...8.50
 mm: (7.60...8.60)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 900
 Supply-pump
 pressure bar: 4.20...4.80
 bar: (3.90...5.10)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 2nd speed 1/min: 1200
 Supply-pump
 pressure bar: 5.10...5.70
 bar: (4.80...6.00)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2200
 Supply-pump
 pressure bar: 7.90...8.50
 bar: (7.60...8.80)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 4th speed 1/min: 1800
 Supply-pump
 pressure bar: 6.80...7.40
 bar: (6.50...7.70)

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (27.80...97.30)
 2nd speed 1/min: 2200

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 Overflow : 55.60...138.90
 quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

5th speed 1/min: 2600

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12
 Del. quantity cm³/: 12.00...18.00
 1000S.: (10.50...19.50)

8th speed 1/min: 2350

KSB/AFB
 valve Volt: 12
 Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 26.00...34.00
 1000S.: (24.50...35.50)
 9th speed 1/min: 1800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.10...34.10
 1000S.: (30.60...35.60)
 12th speed 1/min: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...34.00
 1000S.: (30.00...35.00)
 15th speed 1/min: 900
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.40...32.40
 1000S.: (38.40...37.40)
 17th speed 1/min: 2200
 KSB solenoid-operated
 valve volt: 12
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 33.00...34.00
 1000H.: (32.20...34.80)
 20th speed 1/min: 600
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.10...33.10
 1000S.: (29.10...43.10)

Mech. shutoff:
 Mech. Abstellung:

1st speed 1/min: 2200
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: 12

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Damper set qty.:

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LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 350
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.50...11.50
 1000S.: (5.50...13.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1. Rotacao 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 900
 Inj.-qty. cm³/ : 8.00...10.00'
 difference 1000S.: (8.00...10.00)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 900
 Inj.-qty. cm³/: 8.60...12.60*
 difference 1000S.: (8.60...12.60)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 900
 Inj.-qty. cm³/: 2.00...8.00#
 difference 1000S.: (2.00...8.00)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 900
TD-travel : 0.70...0.90*
difference mm: (0.70...0.90)
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
TD-travel : 0.00...0.40#
difference mm: (0.00...0.40)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 900
Supply pump-
pressure : 0.10...0.30'
difference bar: (0.10...0.30)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...65.00
1000S.: (45.00...65.00)

2nd speed 1/min: 310
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...52.00
1000S.: (45.00...55.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.0...1.4

Remarks:
:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1.9 K4
Edition : 10.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2100R410
Type number : O 460 494 272
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M710 VT+ZT 19D

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 1000
Setting value mm: 1.00...1.40
AFB/AFB
valve Volt: 12

G02

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Charge press hPa: 1000
Setting value bar: 3.20...3.80
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 44.00...45.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 29.00...30.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

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Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 11.00...15.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700
Del. quantity cm3/
1000S.: 4.00...6.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 12.00...20.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...80.00
mind 1000S.: 50.00

KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 800
Inj.-qty. cm³/
difference 1000S.: 10.00...18.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 800
TD-travel
difference mm: 0.70...0.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 8.60...9.40
mm: (8.30...9.40)

KSB/AFB
valve Volt: 12
electromagnet Volt: 12
2nd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.00...1.40
mm: (0.70...1.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500

Charge press hPa: 1000
TD travel mm: 5.10...5.90
mm: (4.80...6.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.50...5.50 B
mm: (2.50...5.50)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
5th speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 3.50...4.50 A
mm: (2.50...5.50)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.30...5.90
bar: (5.10...6.10)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.00...7.60
bar: (6.80...7.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.20...3.80
bar: (3.00...4.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 41.00...83.00
quantity cm³/10s: (26.00...98.00)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.00...138.00
quantity cm³/10s: (40.00...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800*
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 6.6
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...36.50
1000S.: (33.50...38.50)

3rd speed 1/min: 2450
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...20.00
1000S.: (11.00...21.00)

5th speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...36.00
1000S.: (29.00...37.00)

9th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...46.00
1000S.: (42.00...47.00)

10th speed 1/min: 600
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.00...30.00
1000S.: (27.00...32.00)

12th speed 1/min: 1500
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quynntity cm³/: 44.00...45.00
1000S.: (42.50...46.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: 12

Idle delivery:

1st speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (9.50...16.50)
Dispersion cm³/: 2.5
1000S.: (2.5)

Residual:

1.Rotacao 1/min: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.00...6.00
1000S.: (3.00...7.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 800
Charge press. hPa: -
Inj.-qty. cm³/: 10.00...18.00
difference 1000S.: (10.00...18.00)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 800
Charge press. hPa: -
TD-travel : 0.70...0.90
difference mm: (0.70...0.90)
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

2nd speed 1/min: 300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...47.50
1000S.: (32.50...47.50)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...80.00
1000S.: (40.00...80.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 5.6...6.0
KF mm: 3.2...3.4
MS mm: 1.0...1.4
LDA stroke mm: 6.6

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

Overflow restriction 0.55 mm - Part No.
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A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1.9 C5
Edition : 10.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R420
Type number : 0 460 494 277
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.D - 1.9L.

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm³/
1000S.: 5.50...6.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...65.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm³/
difference 1000S.: 4.00...10.00
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
TD-travel
difference mm: 0.60...0.80
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.50...7.30
mm: (6.20...7.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
bar: (4.10...5.10)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.50...6.10
bar: (5.30...6.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
bar: (7.50...8.50)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2525

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)
8th speed 1/min: 2425

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 19.00...29.00
1000S.: (18.00...30.00)
9th speed 1/min: 2200

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.50...38.50
1000S.: (35.30...39.70)
12th speed 1/min: 1250

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...43.00
1000S.: (40.30...44.70)
15th speed 1/min: 750

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...37.00
1000S.: (32.50...38.50)
20th speed 1/min: 400

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...41.50
1000S.: (33.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/ 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

High Idle:

1st speed 1/mi: 525

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.30...9.30
1000S.: (5.80...10.80)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : 4.00...10.00#
difference 1000S.: (3.00...11.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/ : 0.00...3.00*
difference 1000S.: (0.00...3.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.60...0.80#
difference mm: (0.60...0.80)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 1.80...2.20*
difference mm: (1.50...2.50)

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: -
3rd speed 1/min: 1250
Supply pump-
pressure : 1.10...1.50*
difference bar: (0.90...1.70)
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)

1st speed 1/min: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...29.00
1000S.: (25.00...31.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)
2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...50.00
1000S.: (30.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.1...1.5

Remarks:

:
Overflow restriction 0.55 mm - Part No.
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On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K10
Edition : 04.12.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2250R445
Type number : 0 460 494 278
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TE-L (Cit.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 42.00...48.00
Electronically : 40.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 53.50...54.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 40.00...41.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Charge press hPa: -
Del. quantity cm³/
1000S.: 12,0...14.0

Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (3,0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm³/
1000S.: 6.00...7.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 12.00...16.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm³/
mind 1000S.: 37.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference 1000S.: 11.00...15.00
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: 0.90...1.10
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.40...7.20
mm: (6.10...7.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.50...2.30
mm: (1.20...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.60...6.20
bar: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000

Supply-pump
pressure bar: 7.30...7.90
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (26.70...98.40)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: -
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 48.00...49.00
1000S.: (45.50...51.50)

2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000S.: -

5th speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 12.00...16.00
1000S.: (10.00...18.00)

8th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 33.00...43.00
1000S.: (32.00...44.00)

9th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 50.00...52.00
1000S.: (48.80...53.20)

10th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 51.00...53.00
1000S.: (49.80...54.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.50...54.50
1000S.: (51.80...56.20)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...41.00
1000S.: (37.50...43.50)
20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 47.50...50.50
1000S.: (46.00...52.00)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 2000
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: 12
KSB/AFB
valve Volt: -

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

Damper set qty.:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...35.00
1000S.: -

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (9.00...17.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (8.00...16.00)

Residual:

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...7.00
1000S.: (4.50...8.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : 2.00...8.00
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : 2.10...2.50
difference mm: (1,60...3.00)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : 0,9...1.30
difference bar: (0,7...1,50)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

2nd speed 1/min: 380
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

3rd speed 1/min: 200
Charge press. hPa: -
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 50.00...56.00
1000s.: (45.50...60.50)

4th speed 1/min: 150

Charge press. hPa: -

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 37.00...67.00
1000s.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

min voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4

KF mm: K-0T

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

Overflow restriction 0.55 mm - Part No.
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BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1.9 C6
Edition : 10.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R420-4
Type number : 0 460 494 287
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.D - 1.9L.

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm³/
1000S.: 5.50...6.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...65.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm³/
difference 1000S.: 4.00...10.00
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: 0.60...0.80
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.50...7.30
mm: (6.20...7.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
bar: (4.10...5.10)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.50...6.10
bar: (5.30...6.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
bar: (7.50...8.50)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 19.00...29.00
1000S.: (18.00...30.00)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.50...38.50
1000S.: (35.30...39.70)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...43.00
1000S.: (40.30...44.70)

15th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...37.00
1000S.: (32.50...38.50)

20th speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...41.50
1000S.: (33.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

High Idle:

1st speed 1/mi: 525

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.30...9.30
1000S.: (5.80...10.80)

Load-dependent start of delivery:
Inj.-qty. dif. measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : 4.00...10.00#
difference 1000S.: (3.00...11.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/ : 0.00...3.00*
difference 1000S.: (0.00...3.00)
Shutoff
electromagnet Volt: 12

TD-travel dif. measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.60...0.80#
difference mm: (0.60...0.80)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 1.80...2.20*
difference mm: (1.50...2.50)

SP press.-dif. measurement:
pompa di mandata (FP):
1st speed 1/min: -
3rd speed 1/min: 1250
Supply pump-
pressure : 1.10...1.50*
difference bar: (0.90...1.70)
Shutoff
electromagnet Volt: 12

Part-load del. at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)

1st speed 1/min: 1000

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Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...29.00
1000S.: (25.00...31.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...50.00
1000S.: (30.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.1...1.5

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF 2,5 R6
Edition : 05.12.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/9F1900R428
Type number : 0 460 494 289

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.97.2780

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0,40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147,00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 4,10...4,50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000

Setting value bar: 4,7...5,3
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 57,5...58,5
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: -

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
1000S.: 40,0...41,0
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Charge press hPa: -
Del. quantity cm3/
1000S.: 8,0...12,0
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (3,0)

Full-load speed regulation

Speed 1/min: 2150
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 32,0...38,0
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/
mind 1000S.: 45,0
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 13,5...19,5 *

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
Charge press hPa: 1000
TD-travel
difference mm: 0,4...0,6 *
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 550
Charge press hPa: 1000
TD travel mm: 1,0...1,8
mm: (0,7...2,1)
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 4,1...4,5
mm: (3,6...5,0)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1900
Charge press hPa: 1000
TD travel mm: 8,7...9,5
mm: (8,4...9,8)

Supply-pump pressure characteristic:

1st speed 1/min: 550
Charge press. hPa: 1000
Supply-pump
pressure bar: 2,8...3,4
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4,7...5,3
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump
pressure bar: 7,8...8,4
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41,6...83,3
quantity cm³/10s: (26,6...98,3)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55,5...138,8
quantity cm³/10s: (40,5...153,8)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
Charge-air pressure-setting
point hPa: 500
LDA-stroke mm: 5,3
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 54,0...56,0
1000S.: (52,0...58,0)

2nd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 0,0...3,0
1000S.: -

3rd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 32,0...38,0
1000S.: (30,0...40,0)

4th speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 49,5...56,5
1000S.: (48,0...58,0)

5th speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 57,5...59,5
1000S.: (56,0...61,0)

6th speed 1/min: 1800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 58,5...59,5
1000S.: (57,0...61,0)

7th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 56,0...59,0
1000S.: (55,0...60,0)
8th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55,5...58,5
1000S.: (54,5...59,5)
9th speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 47,0...41,0
1000S.: (38,0...43,0)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/: 0,0...3,0
1000S.: -
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8,0...12,0
1000S.: (5,5...14,5)
Dispersion cm³/: 2,5
1000S.: (3,0)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4,0...10,0
1000S.: (2,0...12,0)
3rd speed 1/min: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0,0...3,0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/ : 12,0...14,0 *
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/: 2,0...8,0 #
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : 0,7...1,1 #
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: 1000
Supply pump-
pressure : 0,1...0,3 *
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12,0

1st speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31,5...33,5
1000S.: (29,5...35,5)

Automatic starting fuel delivery:

1st speed 1/min: 300
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45,0...65,0
1000S.: -

2nd speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25,0...45,0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm: 3,2...3,4
KF mm: 5,6...6,0
MS mm: 0,9...1,3

LDA stroke mm: 5,3

Ajustement Potentiometer:

Supply voltage

pot. volt: 5,0

Output volt

pot. volt: 2,8

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,7 D
 Edition : 03.12.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2300R443
 Type number : 0 460 494 293
 Customer Part-No. :

Customer-specific information
 Customer : OPEL

Engine : 17 YD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Setting value mm: 2.00...2.40
 AFB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

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Supply-pump pressure

Speed 1/min: 1000
 Setting value bar: 4.00...4.60
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1300
 Del. quantity cm3/
 1000S.: 31,2...32,2
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Dispersion cm3/: 2,5
 1000S.: (2,5)

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Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm3/
 1000S.: 6,3...10,3
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 2,5
 1000S.: (3,0)

Residual-Delivery Setting

Speed 1/min: 500
 Del. quantity cm3/
 1000S.: 1.50...2.50
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2735
 Del. quantity cm3/
 1000S.: 7.00...11.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm3/: 28,0...44,0
 mind 1000S.: -
 KSB/AFB
 Valve Volt: 12

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1000
 Charge press hPa: 12
 Inj.-qty. cm³/
 difference 1000S.: 11.00...19.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1000
 TD-travel
 difference mm: 0.60...0.80
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1000
 Supply pump
 pressure
 difference bar: 0,10...0,30
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 300
 TD travel mm: 0,80...3,20
 mm: -

KSB/AFB
 valve Volt: -
 electromagnet Volt: 12
 2nd speed 1/min: 800
 TD travel mm: 1,90...4,30
 mm: -

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1000
 TD travel mm: 1,90...4,30
 mm: -

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 800

TD travel mm: 0.90...1.70
 mm: (0.60...2.00)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1000
 TD travel mm: 2,00...2,40
 mm: (1,50...2,90)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 2000
 TD travel mm: 6,70...7,50
 mm: -

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 7.Rotacao 1/min: 2300
 TD travel mm: 7,50...8,30
 mm: (7,20...8,60)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000
 Supply-pump
 pressure bar: 7.60...8.20
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1000
 Supply-pump
 pressure bar: 4.00...4.60
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 800
 Supply-pump
 pressure bar: 3.40...4.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 700
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm3/10s: (26.70...98.40)
2nd speed 1/min: 2300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2735
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 7,00...11,00
1000S.: (5,00...13,00)

2nd speed 1/min: 2575
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 18,5...24,50
1000S.: -

3rd speed 1/min: 2300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 27,2...28,8
1000S.: (26,2...30,8)

4th speed 1/min: 2000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 27,7...30,3
1000S.: (26,7...31,3)

5th speed 1/min: 1300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 31,2...32,2
1000S.: (29,4...34,0)

6th speed 1/min: 700
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 24,5...27,5
1000S.: (23,0...29,0)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6,3...10,3
1000S.: (4,3...12,3)

Dispersion cm3/: 2,5
1000S.: (3,0)

Residual:

1.Rotacao 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 1.50...2.50
1000S.: (0.00...4.00)

2nd speed 1/min: 750
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...1.60
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Inj.-qty. cm3/ : 8.00...10.00
difference 1000S.: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Inj.-qty. cm3/: 11,0...19,0
difference 1000S.: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1000
TD-travel : 0.60...0.80
difference mm: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1000
Supply pump-
pressure : 0.10...0.30
difference bar: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...35.00
1000S.: -

2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.50...32.50
1000S.: -

3rd speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.00...44.00

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4
KF mm: 5,3...5,7
MS mm: 0,7...1,1
XK mm: -
XL mm: -

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,9 C6
Edition : 04.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R447-4
Type number : 0 460 494 296
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 l UD f. Golf

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 000

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.70...5.10
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm³/
1000S.: 49.30...50.30
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 37,5...40,5
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Charge press hPa: -
Del. quantity cm³/
1000S.: 16.0...18.0

Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm³/
1000S.: 7.00...8.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm³/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: 7.00...11.00
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: 1.90...2.10
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.44...9.20
mm: (8.10...9.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.70...5.10
mm: (4.20...5.60)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750
Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm3/10s: (26.70...98.40)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm3/10s: (40.60...154.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 38,0...41,0

2nd speed 1/min: 700
Charge press. hPa: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 39,0...40,0

3rd speed 1/min: 700
Charge press. hPa: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 34,4...35,4

4th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 9,0...13,0
(7,0...15,0)

5th speed 1/min: 2500
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 19,0...29,0
(18,0...30,0)

6th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 35,0...45,0
(34,0...46,0)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/1000S.: 41.30...43.30
(40.10...44.50)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 49.30...50.30
1000S.: (47,60...52,00)
13th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42,7...45,7
1000S.: (42,0...46,4)
16th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 37.50...40.50
1000H.: (36.00...42.00)
21th speed 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (34.50...45.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/: 7,0...11,0 *
difference 1000S.: (5,0...13,0) *
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : 1.90...2.10 *
difference mm: -
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : 2,30...3,10 #
difference mm: -

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 0.80...1.60 #

Automatic starting fuel delivery:

1st speed 1/min: 180
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: -

2nd speed 1/min: 380
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...51.00
1000S.: -

3rd speed 1/min: 100
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm: 3,6...3,8
KF mm: K-OT
MS mm: 1,1...1,5

LDA stroke mm: -

Remarks:
:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,9 K
Edition : 05.12.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/9F2100R466
Type number : 0 460 494 304
Customer-specific information
Customer : FIAT TIPO TEMPRA
Engine : M710

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 6,2...6,4
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5,7...6,3
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 52,00...53,00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: (2,5)

Full-load del. w/out charge press.:

Speed 1/min: 800
Del. quantity cm3/
1000S.: 48,5...49,5

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

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Low-idle speed regulation

Speed 1/min: 450
Charge press hPa: -
Del. quantity cm3/
1000S.: 11,0...15,0

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2,5
1000S.: (2,5)

Residual-Delivery Setting

Speed 1/min: 700
Charge press. hPa: -
Del. quantity cm3/
1000S.: 4,0...6,0

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000

Del. quantity cm³/
1000S.: 35,0...41,0

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/
mind 1000S.: 50,0
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: 5,0...7,0 *

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference mm: 0,8...1.0 *
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 3,90...5,50
mm: (3,20...6,20)

KSB/AFB
valve Volt: -
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 3,50...6,50
mm: -

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1,6...2,4
mm: (1,3...2,7)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 6,0...6,4
mm: (5,6...6,8)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8,6...9,4
mm: (8,3...9,7)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3,7...4,3

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5,7...6,3

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7,3...7,9

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow : 75...119
quantity cm3/10s: (60...134)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 97...180,5
quantity cm3/10s: (82...195,5)
Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 5,2
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 48,5...49,5
1000S.: (46,5...51,5)

2nd speed 1/min: 2450
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 17,0...25,0
1000S.: (16,0...26,0)

3rd speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 35,0...41,0
1000S.: (33,0...43,0)

4th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 47,6...50,6
1000S.: (46,6...51,6)

5th speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 52,0...53,0
1000S.: (50,5...54,5)

6th speed 1/min: 600
Charge press. hPa: -
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 39,5...40,5
1000S.: (37,5...42,5)
7th speed 1/min: 800
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 38,1...40,7
1000S.: (37,2...42,2)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Charge press. hPa: -
Del. quantity cm3/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: 12

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 11,0...15,0
1000S.: (9,0...17,0)

Residual:

1.Rotacao 1/min: 700
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 4,0...6,0
1000S.: (3,0...7,0)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm3/ : 5,0...7,0 *
difference 1000S.: -
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/: 8,0...16,0 #
difference 1000S.: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : 0.8...1.0 #
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure : 0,1...0,3 *
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52,0...78,0
1000S.: -

2nd speed 1/min: 300
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35,5...45,5
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4
KF mm: 5,2...5,6
MS mm: 1,0...1,4
LDA stroke mm: 5,2

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.75 mm - Part No.
..343,..344

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1.6 X18
Edition : 09.12.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R328-6
Type number : 0 460 494 311
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.6L TD/LLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 27.60...28.20

Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 615
Del. quantity cm3/
1000S.: 4.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 750
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference 1000S.: 8.50...12.50
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: 0.60...0.80

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 750
TD travel mm: 6.40...7.20
mm: (6.10...7.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 3.00...3.40
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 750
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 7.00...7.80
mm: (6.70...8.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 750
Supply-pump
pressure bar: 3.30...3.90
bar: (3.10...4.10)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 4.90...5.50
bar: (4.70...5.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump
pressure bar: 7.70...8.30
bar: (7.50...8.50)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900*
Charge-air pressure-setting
point hPa: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.10...34.70
1000S.: (31.40...37.40)

2nd speed 1/min: 2650
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2525
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (11.00...19.00)

8th speed 1/min: 2425
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.50...36.50
1000S.: (25.50...37.50)

9th speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...37.50
1000S.: (34.30...38.70)

12th speed 1/min: 1500
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quynity cm³/: 42.00...43.00
1000S.: (40.30...44.70)

16th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet volt: 12

Del. quantity cm³/: 28.20...30.60
1000H.: (27.90...30.90)
18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.60...28.20
1000S.: (24.90...30.90)
20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...37.00
1000S.: (32.50...38.50)
21th speed 1/min: 400
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.90...34.90
1000S.: (31.70...35.10)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 465
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (7.50...18.50)

High Idle:

1st speed 1/mi: 515
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (8.00...18.00)

Residual:

1.Rotacao 1/min: 615
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.00...5.00
1000S.: (1.50...7.50)
2nd speed 1/min: 565

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...7.50
1000S.: (3.00...10.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250
Inj.-qty. cm³/: 8.50...12.50'
difference 1000S.: (6.50...14.50)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: 0.00...3.00#
difference 1000S.: (0.00...3.00)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : 0.60...0.80'
difference mm: (0.60...0.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Charge press. hPa: -
TD-travel : 0.90...1.30#
difference mm: (0.60...1.60)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Supply pump-
pressure : 0.60...1.00#
difference bar: (0.40...1.20)

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: K1
KF	mm: 5.6...6.0
MS	mm: 1.2...1.6

Remarks:

⋮

Overflow restriction 0.55 mm - Part No.
..303

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a16
 Edition : 18.12.91
 Replaces : 28.9.89
 Test oil : ISO-4113

Combination no. : 0 400 866 135

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...105DAOC2190
 -30R
 Governor no. : 0 420 233 234

Customer-spec. information
 Customer : C.D.C.

Engine : 6-CT-I 8.3 ltr

1st version kW : 123.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

H08

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 120.5...124.5
1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915992

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a98
 Edition : 18.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 145AA
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -35R
 Governor no. : 0 420 233 242

Customer-spec. information
 Customer : CDC

Engine : 6 C
 1st version kW : 100.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

H10

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 10.0...10.1

100 s: (9.8...10.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 100.5...101.5

1000 : (98.0...104.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 93...101

Testing:

1st rack travel in: 10.00
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1020...1050
4th rack travel in: 1470
Speed rpm : 0.30...1.40

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.00...11.10
2nd speed rpm : 500
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 98.5...100.5
1000 s: (96.5...102.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a78
 Edition : 18.12.91
 Replaces : 9.7.90
 Test oil : ISO-4113
 Combination no. : 0 400 866 161
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1000A0C2190
 -49R
 Governor no. : 0 420 233 263

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 151.4
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

H12

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 12.3...12.5

100 s: (12.1...12.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 123.0...125.0

1000 : (121.0...127.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.10
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1100...1130
3rd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1175
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915963

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : EIC 2,9 c 5
 Edition : 18.12.91
 Replaces : 29.11.91
 Test oil : ISO-4113
 Combination no. : 0 400 873 036
 Injection pump
 Pump designation : PES3A90D320RS2626
 EP type number : 0 410 893 002
 Governor
 Governor design. : RSV300...975A1C2171-5R
 Governor no. : 0 420 233 185

Customer-spec. information
 Customer : EICHER

Engine : EDL3-2

1st version kW : 40.0
 Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 7.7...7.8

100 s: (7.5...8.0)

Spread cm³ : 0.2

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.5...2.5

100 s: (1.3...2.7)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Del. quantity : 77.0...78.0

1000 : (75.0...80.0)

Spread cm³ : 2.50

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 10.40

Speed rpm : 1015...1025

2nd rack travel in: 4.00

Speed rpm : 1045...1075
3rd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1235
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 400...460

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 11.30...11.40
2nd speed rpm : 500
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 69.0...71.0
1000 s: (66.5...73.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 133.0...143.0
1000 s: (130.0...146.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 q 1
 Edition : 20.12.91
 Replaces : 18.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 375
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RSV300...1300A0C2251
 R
 Governor no. : 0 420 233 272

Customer-spec. information
 Customer : DAF

Engine : NT 116

1st version kW : 119.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 6.1...6.2

100 s: (5.9...6.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 61.5...62.5

1000 : (59.5...64.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 104...112

Testing:

1st rack travel in: 9.30
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1575
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.30...10.40
2nd speed rpm : 500
Rack travel in m: 11.10...11.20
4th speed rpm : 1050
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1290
Del.quantity cm³/ : 68.0...70.0
1000 s: (65.5...72.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 r
 Edition : 20.12.91
 Replaces : 14.9.90
 Test oil : ISO-4113

Combination no. : 0 400 876 376

Injection pump
 Pump designation : PES6A95D320RS2796
 EP type number : 0 410 896 901
 Governor
 Governor design. : RSV300...1300A0C2248
 -2R
 Governor no. : 0 420 233 274

Customer-spec. information
 Customer : DAF

Engine : NS 156G

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 8.4...8.5

100 s: (8.2...8.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 84.5...85.5

1000 : (82.5...87.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever
position degrees: 102...110

Testing:

1st rack travel in: 11.60
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 12.60...12.70
2nd speed rpm : 500
Rack travel in m: 13.70...13.80
4th speed rpm : 1085
Rack travel in m: 13.10...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 260
Rack travel in m: 12.30...12.40
3rd pressure hPa : 210
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1290

Del.quantity cm³/ : 87.0...89.0
1000 s: (84.5...91.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 44.5...45.5
1000 s: (42.5...47.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1320...1330

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 q 2
 Edition : 20.12.91
 Replaces : 27.5.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 377
 Injection pump
 Pump designation : PES6A95D32ORS2693Z
 EP type number : 0 410 896 913
 Governor
 Governor design. : RSV300...1300A0C2248
 -1R
 Governor no. : 0 420 233 273

Customer-spec. information
 Customer : DAF

Engine : NS156

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 8.7...8.8

100 s: (8.5...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 87.5...88.5

1000 : (85.5...90.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 99...107

Testing:
1st rack travel in: 11.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1380...1410
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1575
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.30...12.40
2nd speed rpm : 500
Rack travel in m: 12.30...12.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.00...12.10

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 290
Rack travel in m: 11.50...11.60
3rd pressure hPa : 260
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 53.5...54.5
1000 s: (51.5...56.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 q 3
 Edition : 20.12.91
 Replaces : 28.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 378
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RSV300...1300AOC2248
 -2R
 Governor no. : 0 420 233 274

Customer-spec. information
 Customer : DAF

Engine : NT 133

1st version kW : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.60...11.70

Del. quantity cm³/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 104...112

Testing:

1st rack travel in: 9.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9
Speed rpm : 300
Rack travel in mm : 5.80...6.10
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 1070
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 160
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1290
Del.quantity cm³/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -

Speed rpm : 600
Del.quantity cm³/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 o 8
 Edition : 20.12.91
 Replaces : 26.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 379
 Injection pump
 Pump designation : PES6A95D320RS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RSV300...1300AOC2248
 -3R
 Governor no. : 0 420 233 275

Customer-spec. information
 Customer : DAF

Engine : NT 133

1st version kW : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 104...112

Testing:

1st rack travel in: 9.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 1070
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 160
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1290
Del.quantity cm³/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -

Speed rpm : 600
Del.quantity cm³/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 o16
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 392
 Injection pump
 Pump designation : PES6A95D32ORS2693Z
 EP type number : 0 410 896 913
 Governor
 Governor design. : RSV300...1300AOC2248
 -2R
 Governor no. : 0 420 233 274

Customer-spec. information
 Customer : DAF

Engine : NS156

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 8.5...8.6

100 s: (8.3...8.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 85.5...86.5

1000 : (83.5...88.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever
position degrees: 107...115

Testing:

1st rack travel in: 10.70
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1400...1430
3rd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 11.70...11.80
2nd speed rpm : 500
Rack travel in m: 12.20...12.40
4th speed rpm : 1000
Rack travel in m: 11.80...12.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.20...10.40
2nd pressure hPa : 290
Rack travel in m: 11.50...11.60
3rd pressure hPa : 250
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1290
Del.quantity cm³/ : 87.0...89.0
1000 s: (84.5...91.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 54.0...55.0
1000 s: (52.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 6
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 394
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100AOC2234
 -2L
 Governor no. : 0 420 232 569

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW04

1st version kW : 122.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 100.5...102.5

1000 : (98.5...104.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 125.0...128.0
1000 s: (122.5...130.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE51026
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAO 20,9 a
 Edition : 18.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 840 110
 Injection pump
 Pump designation : PE12P120A520/4LS859
 EP type number : 0 411 820 037
 Governor
 Governor design. : RQ900PA663-9
 Governor no. : 0 421 801 577

Customer-spec. information
 Customer : DAEWOO

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 1- 5- 9- 8- 3-
 : 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 850
 Rack travel in mm : 8.00...8.10
 Del.quantity cm³/ : 16.9...17.1
 100 s: (16.6...17.4)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 250.0
 Rack travel in mm : 5.0...5.4
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Del.quantity : 169.0...171.0
 1000 : (166.0...174.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Testing:
 1st rack travel in: 9.00
 Speed rpm : 900...905
 2nd rack travel in: 4.00
 Speed rpm : 932...946
 4th rack travel in: 1000
 Speed rpm : 0.00...1.00

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 9.00
 Speed rpm : 900...905

Remarks:

:

APPLICATION

Generator set



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 20,9 y
 Edition : 18.08.89
 Replaces : 12.9.86
 Test oil : ISO-4113

Combination no. : 0 401 840 760

Injection pump
 Pump designation : PE12P120A520/4LS3841
 EP type number : 0 411 820 725
 Governor
 Governor design. : RQ750PA663-7
 Governor no. : 0 421 801 331

Customer-spec. information
 Customer : MAN

Engine : D2842LE

1st version kW : 380.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 12- 1- 5- 9- 8- 3-
 : 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 : 180-225-240-285-300-

Phasing : 345
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 21.5...21.7

100 s : (21.2...22.0)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 215.0...217.0

1000 : (212.0...220.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: -

Testing:

1st rack travel in: 12.10

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 797...810

4th rack travel in: 950

Speed rpm : 0.00...1.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...185.0
1000 s: (161.0...189.0)

Remarks:
: MAN-NR. 2-7828

APPLICATION

Generator set



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 21,0 c
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 840 771

Injection pump
 Pump designation : PE12P120A520/4LS3854
 EP type number : 0 411 820 728
 Governor
 Governor design. : RQ950PA664-3
 Governor no. : 0 421 801 629

Customer-spec. information
 Customer : MAN

Engine : D2842LE

1st version kW : 443.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 12- 1- 5- 9- 8- 3-
 : 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 : 180-225-240-285-300-
 Phasing : 345
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.00...13.10
 Del.quantity cm³/ : 25.0...25.2
 100 s: (24.7...25.5)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.9...7.1
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 250.0...252.0
 1000 : (247.0...255.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: -

Testing:
 1st rack travel in: 12.00
 Speed rpm : 1020...1030
 2nd rack travel in: 4.00
 Speed rpm : 1070...1100
 4th rack travel in: 1400
 Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1020...1030

Remarks:

:

APPLICATION

Generator set



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 b5
 Edition : 20.12.91
 Replaces : 6.4.88
 Test oil : ISO-4113

Combination no. : 0 401 846 286V

Injection pump
 Pump designation : PE6P100A320RS100V
 EP type number : 0 411 806 123
 Governor
 Governor design. : RQV250...1100PA232/2
 R
 Governor no. : 0 421 813 134

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : T(H)D 100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 004

Outside diameter
 x Wall thickness : 6.00x1.50x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 14.5...14.7

100 s : (14.3...14.9)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.1...1.5

100 s : (0.8...1.7)

Spread cm³ : 0.2

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 500

Del. quantity : 145.0...147.0

1000 : (143.0...149.0)

Spread cm³ : 4.00

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 12.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 320...380

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 500
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 240
Rack travel in m: 12.70...12.90
3rd pressure hPa : 80
Rack travel in m: 11.20...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 105.0...107.0
1000 s: (103.0...109.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1140...1150

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 2.50
1000 s: (5.00)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 b
 Edition : 29.11.91
 Replaces : 3.83
 Test oil : ISO-4113

Combination no. : 0 401 846 486

Injection pump
 Pump designation : PE6P120A72ORS214
 EP type number : 0 411 826 060
 Governor
 Governor design. : RQV425...1100PA438-2
 Governor no. : 0 421 813 376

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8215.02.542

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.50...9.60

Del.quantity cm³/ : 14.9...15.1
 100 s: (14.6...15.4)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 425.0
 Rack travel in mm : 5.4...5.8
 Del.quantity cm³/ : 1.5...2.1
 100 s: (1.2...2.4)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145
 travel mm : 8.50...8.70

2nd speed rpm : 425
 travel mm : 1.10...1.50

3rd speed rpm : 600
 travel mm : 3.90...4.50

4th speed rpm : 850
 travel mm : 6.00...6.40

5th speed rpm : 1450
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1130
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 149.0...151.0
 1000 : (146.0...154.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 8.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 100
Minimum rack travel: 7.10
Speed rpm : 425
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 425...525

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.50...9.60
2nd speed rpm : 800
Rack travel in m: 10.40...10.50
3rd speed rpm : 1000
Rack travel in m: 10.00...10.10
4th speed rpm : 900
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 155.0...159.0
1000 s: (152.0...162.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 b 4
 Edition : 05.11.90
 Replaces : 1.2.90
 Test oil : ISO-4113

Combination no. : 0 401 846 497

Injection pump
 Pump designation : PE6P120A320RS438-1
 EP type number : 0 411 826 133
 Governor
 Governor design. : RQV275...1200PA648-2
 Governor no. : 0 421 813 490

Customer-spec. information
 Customer : RVI

Engine : MIDS062030

1st version kW : 150.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Del.quantity cm³/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 3.6...3.8

Del.quantity cm³/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.20...1.40

2nd speed rpm : 450
 travel mm : 3.30...4.00

3rd speed rpm : 850
 travel mm : 5.90...6.20

4th speed rpm : 1200
 travel mm : 8.20...8.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 133.0...135.0

1000 : (130.0...138.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Setting point:
Speed rpm : 1200
Rack travel in mm : 16.5

Testing:
1st rack travel in: -1.00
Speed rpm : 1265...1275
2nd rack travel in: -6.20
Speed rpm : 1355...1385
4th rack travel in: 1500
Speed rpm : -9.20...-10.2

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 3.7

Testing:
Speed rpm : 100
Speed rpm : 275
Rack travel in mm : -3.60...-3.80
Speed rpm : 200
Maximum rack trave: -1.40

CONSTANT REGULATION

Speed rpm : 275...360

START CUT-OUT

Speed 1/min : 215 (235)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 116.0...122.0
1000 s: (113.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: -1.00
Speed rpm : 1265...1275

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 105.0...125.0
1000 s: (101.0...129.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : -3.60...-3.80
Del.quantity cm3/ : 15.0...21.0
1000 s: (12.0...24.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery mark at the "INJ"
marking

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 b 1
Edition : 02.12.91
Replaces : 10.85
Test oil : ISO-4113
Combination no. : 0 401 846 508
Injection pump
Pump designation : PE6P100A720RS473
EP type number : 0 411 806 196
Governor
Governor design. : RQV300...1100PA741
Governor no. : 0 421 813 473

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 355

1st version kW : 177.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1160

travel mm : 8.70...8.90

2nd speed rpm : 300

travel mm : 1.20...1.70

3rd speed rpm : 600

travel mm : 3.80...4.30

4th speed rpm : 800

travel mm : 5.40...5.90

5th speed rpm : 1000

travel mm : 6.80...7.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 125.0...127.0
1000 : (123.0...129.0)
Spread cm³ : 3.50
1000 : (6.00)

Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks: :

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 12.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 17...25

Testing:
Speed rpm : 100
Minimum rack trave: 9.70
Speed rpm : 300
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 117.0...121.0
1000 s: (114.5...123.5)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6 y2
 Edition : 29.11.91
 Replaces : 1.7.88
 Test oil : ISO-4113

Combination no. : 0 401 846 511

Injection pump
 Pump designation : PE6P120A320RS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RQ250/1000PA417-4
 Governor no. : 0 421 801 287

Customer-spec. information
 Customer : DAF

Engine : DKZ 1160

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 7.40
Speed rpm : 250
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 450...490

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 13.50...13.60
2nd speed rpm : 990
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 340
Rack travel in m: 11.80...11.90
3rd pressure hPa : 280
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 140.0...142.0
1000 s: (137.0...145.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1035...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 305.0...345.0
1000 s: (305.0...345.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6 y1
 Edition : 18.12.91
 Replaces : 10.85
 Test oil : ISO-4113

Combination no. : 0 401 846 512

Injection pump
 Pump designation : PE6P120A32ORS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RQ250/1100PA417R
 Governor no. : 0 421 801 084

Customer-spec. information
 Customer : DAF

Engine : DKX 1160

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance $\alpha - \circ$: 0.50 (0.75)

BASIC SETTINGS

1st speed rpm : 850

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 700

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 187.0...189.0

1000 : (184.0...192.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 700

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.60

Speed rpm : 1125...1140

2nd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack travel: 7.40

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 450...490

TORQUE CONTROL

Dimension a mm : 0.55

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.60...12.70

2nd speed rpm : 1080

Rack travel in m: 12.50...12.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 300

Rack travel in m: 11.30...11.40

3rd pressure hPa : 250

Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 140.0...142.0

1000 s: (137.0...145.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1125...1140

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 305.0...345.0

1000 s: (305.0...345.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 c
 Edition : 29.11.91
 Replaces : 13.12.89
 Test oil : ISO-4113

Combination no. : 0 401 846 547

Injection pump
 Pump designation : PE6P110A820LS513
 EP type number : 0 411 816 174
 Governor
 Governor design. : RQV250...1000PA811
 Governor no. : 0 421 813 556

Customer-spec. information
 Customer : ENASA

Engine : 95 R1 AX

1st version kW : 184.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.8...2.3

100 s: (1.5...2.5)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 400
 travel mm : 2.20...2.80

3rd speed rpm : 650
 travel mm : 4.50...5.10

4th speed rpm : 1050
 travel mm : 8.50...8.70

5th speed rpm : 1140
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 11.60
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 250
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 250...480

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 13.00...13.10
2nd speed rpm : 980
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 580
Rack travel in m: 12.40...12.50
3rd pressure hPa : 375
Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 980
Del.quantity cm³/ : 170.0...174.0
1000 s: (167.0...177.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 124.0...126.0
1000 s: (121.0...129.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 12,0 a
 Edition : 29.11.91
 Replaces : 1.12.89
 Test oil : ISO-4113
 Combination no. : 0 401 846 548
 Injection pump
 Pump designation : PE6P120A32ORS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RQ250/1100PA877
 Governor no. : 0 421 801 409

Customer-spec. information
 Customer : ENASA

Engine : 96T1AZ

1st version kW : 228.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 18.4...18.6

100 s: (18.1...18.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.40...16.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 184.0...186.0

1000 : (181.0...189.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.60

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 7.10
Speed rpm : 250
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 10.90...11.00
2nd speed rpm : 1080
Rack travel in m: 10.60...10.80
3rd speed rpm : 720
Rack travel in m: 10.80...11.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 340
Rack travel in m: 9.30...9.40
3rd pressure hPa : 470
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1080
Del.quantity cm³/ : 198.0...204.0
1000 s: (195.0...207.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 e2
 Edition : 29.11.91
 Replaces : 19.2.91
 Test oil : ISO-4113

Combination no. : 0 401 846 552

Injection pump
 Pump designation : PE6P100A820LS503
 EP type number : 0 411 806 197
 Governor
 Governor design. : RQ250/1000PA352-1
 Governor no. : 0 421 801 412

Customer-spec. information
 Customer : ENASA

Engine : 95 TE DY

1st version kw : 155.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.10...14.20

Del.quantity cm³/ : 16.0...16.2

100 s : (15.8...16.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 16.00...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 160.0...162.0

1000 : (158.0...164.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.6

Testing:

1st rack travel in: 12.70

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 14.10...14.20
2nd speed rpm : 980
Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.90...13.30
2nd pressure hPa : 355
Rack travel in m: 13.80...13.90
3rd pressure hPa : 300
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 980
Del.quantity cm³/ : 154.0...158.0
1000 s: (152.0...160.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 a3
 Edition : 29.11.91
 Replaces : 14.9.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 563
 Injection pump
 Pump designation : PE6P120A32ORS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RQV250...1050PA808-3
 Governor no. : 0 421 813 812

Customer-spec. information
 Customer : ENASA

Engine : 96 T1 CX
 1st version kW : 228.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650
 Rack travel in mm : 10.40...10.50
 Del. quantity cm³/ : 17.9...18.1
 100 s: (17.6...18.4)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 5.6...5.8
 Del. quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 350
 travel mm : 1.90...2.50
 3rd speed rpm : 700
 travel mm : 4.50...5.10
 4th speed rpm : 1095
 travel mm : 8.00...8.20
 5th speed rpm : 1185
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h: 900

Del.quantity : 179.0...181.0
1000 : (176.0...184.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 114...122

Testing:
1st rack travel in: 9.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 250...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.40...10.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 585
Rack travel in m: 10.10...10.20
3rd pressure hPa : 465
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1030
Del.quantity cm3/ : 191.0...197.0
1000 s: (188.0...200.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)
Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 a6
Edition : 30.03.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 563D
Injection pump
Pump designation : PE6P120A32ORS257
EP type number : 0 411 826 075
Governor
Governor design. : RQV250...1050PA808-3
Governor no. : 0 421 813 812

Customer-spec. information
Customer : ENASA

Engine : 96 T1 CW

1st version kW : 206.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650
Rack travel in mm : 10.20...10.30
Del.quantity cm3/ : 17.5...17.7
100 s: (17.2...18.0)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.6...5.8
Del.quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 350
travel mm : 1.90...2.50
3rd speed rpm : 700
travel mm : 4.50...5.10
4th speed rpm : 1095
travel mm : 8.00...8.20
5th speed rpm : 1185
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1110
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 650
Aneroid pressure h: 900

Del.quantity : 175.0...177.0
1000 : (172.0...180.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 9.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1330
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION
Speed rpm : 250...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 460
Rack travel in m: 10.10...10.20
3rd pressure hPa : 280
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1080
Del.quantity cm3/ : 186.0...192.0
1000 s: (183.0...195.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)
Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,0 i2
 Edition : 19.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 773
 Injection pump
 Pump designation : PE6P12DA32ORS3116
 EP type number : 0 411 826 727
 Governor
 Governor design. : RQV250...1025PA921
 Governor no. : 0 421 813 783

Customer-spec. information
 Customer : VOLVO

Engine : TD121G

1st version kW : 243.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 1.8...2.3

100 s: (1.5...2.5)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30

2nd speed rpm : 500
 travel mm : 4.10...4.90

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 900
 travel mm : 6.30...6.70

5th speed rpm : 1025
 travel mm : 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 196.5...198.5
1000 : (193.5...201.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 59...67

Testing:

1st rack travel in: 10.40
Speed rpm : 1085...1095
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 350...410

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.10
2nd pressure hPa : 450
Rack travel in m: 11.20...11.30
3rd pressure hPa : 170
Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 151.0...153.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...270.0
1000 s: (236.0...274.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,0 f6
 Edition : 20.12.91
 Replaces : 4.86
 Test oil : ISO-4113
 Combination no. : D 401 846 7&OË
 Injection pump
 Pump designation : PE6P120A32ORS3071E
 EP type number : 0 411 826 713
 Governor
 Governor design. : RQV300...1050PA371-1
 Governor no. : 0 421 813 412

Customer-spec. information
 Customer : VOLVO

Engine : TD 1206BM

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00

K04

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 11.80...11.90
 Del.quantity cm3/ : 20.0...20.2
 100 s : (19.7...20.5)
 Spread cm3 : 0.5
 100 s : (0.9)
 2nd speed rpm : 300.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm3/ : 1.7...2.1
 100 s : (1.5...2.3)
 Spread cm3 : 0.5
 100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.70
 2nd speed rpm : 450
 travel mm : 2.30...2.70
 3rd speed rpm : 550
 travel mm : 3.30...3.80
 4th speed rpm : 1090
 travel mm : 7.80...8.00
 5th speed rpm : 1160
 travel mm : 8.50...8.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h : 1200
 Del.quantity : 200.5...202.5
 1000 : (197.5...205.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 39...47

Testing:
1st rack travel in: 10.80
Speed rpm : 1105...1115
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1325
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 300
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 380...440

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 910
Rack travel in m: 11.60...11.70
3rd pressure hPa : 400
Rack travel in m: 9.60...9.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 152.5...154.5
1000 s: (149.5...157.5)

BREAKAWAY

K05

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1105...1115

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 8,0 i 2
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 790
 Injection pump
 Pump designation : PE6P110A720RS3034
 EP type number : 0 411 816 711
 Governor
 Governor design. : RQV275...1200PA554-1
 Governor no. : 0 421 813 430

Customer-spec. information
 Customer : SCANIA

Engine : DS8 05

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 12.1...12.3

100 s: (11.9...12.5)

Spread cm³ : 0.5

100 s: (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.5...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1220

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 990

Del.quantity : 121.0...123.0

1000 : (119.0...125.0)

Spread cm³ : 5.00

1000 : (7.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 11.80

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1335...1365

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 275
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 350...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm: 11.60...11.70
2nd pressure hPa : 330
Rack travel in mm: 12.50...12.60
3rd pressure hPa : 220
Rack travel in mm: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1200
Del. quantity cm³/ : 126.5...131.5
1000 s: (124.0...134.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 85.0...89.0
1000 s: (83.0...91.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...240.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 15.0...20.0
1000 s: (13.0...22.0)
Spread cm³ : 2.00
1000 s: (4.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

ADDITIONAL INFORMATION

Check and set without RO80 diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Nov. 2, 1983

Engine start of delivery: 18° BTDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 u1
 Edition : 20.12.91
 Replaces : 4.11.88
 Test oil : ISO-4113
 Combination no. : 0 401 846 850E
 Injection pump
 Pump designation : PE6P110A32ORS3197
 EP type number : 0 411 816 752
 Governor
 Governor design. : RQV300...1100PA232-3
 Governor no. : 0 421 813 639

Customer-spec. information
 Customer : VME

Engine : TD102 KBE

1st version kW : 194.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

K08

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 16.9...17.1

100 s: (16.6...17.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.60

2nd speed rpm : 350
 travel mm : 1.70...2.30

3rd speed rpm : 700
 travel mm : 4.40...5.00

4th speed rpm : 1165
 travel mm : 8.70...8.90

5th speed rpm : 1255
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 169.0...171.0

1000 : (166.0...174.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 109...117

Testing:
1st rack travel in: 11.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 75...83

Testing:
Speed rpm : 100
Minimum rack travel: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.50...12.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 655
Rack travel in m: 12.30...12.40
3rd pressure hPa : 255
Rack travel in m: 9.60...9.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 115.0...117.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...190.0
1000 s: (146.0...194.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

APPLICATION

Loading machine

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 e5
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 854HD
 Injection pump
 Pump designation : PE6P120A32ORS3118-1
 EP type number : 0 411 826 739
 Governor
 Governor design. : RQV250...850PA921-12
 Governor no. : 0 421 813 795

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD122FCQ

1st version kW : 287.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.30...12.40
 Del. quantity cm³/ : 21.4...21.6
 100 s : (21.1...21.9)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 3.3...3.5
 Del. quantity cm³/ : 1.8...2.3
 100 s : (1.5...2.5)
 Spread cm³ : 0.5
 100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 350
 travel mm : 2.20...2.80
 3rd speed rpm : 700
 travel mm : 6.40...6.60
 4th speed rpm : 885
 travel mm : 7.60...7.80
 5th speed rpm : 955
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 930
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900

Del.quantity : 214.5...216.5
1000 : (211.5...217.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.30
Speed rpm : 880...890
2nd rack travel in: 4.00
Speed rpm : 990...970
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 4.80
Speed rpm : 250
Rack travel in mm : 3.30...3.50

CONSTANT REGULATION
Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 80
Rack travel in m: 9.60...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 880...890

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...280.0
1000 s: (236.0...284.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.50
Del.quantity cm³/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 c
 Edition : 29.11.91
 Replaces : 27.5.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 860
 Injection pump
 Pump designation : PE6P120A320RS3200
 EP type number : 0 411 826 766
 Governor
 Governor design. : RQV250...1000PA808-1
 Governor no. : 0 421 813 660

Customer-spec. information
 Customer : ENASA

Engine : 96 R1 BX

1st version kW : 265.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 24.9...25.1

100 s: (24.6...25.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.7

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.10...2.60

3rd speed rpm : 700

travel mm : 4.70...5.30

4th speed rpm : 1055

travel mm : 7.90...8.10

5th speed rpm : 1145

travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del. quantity : 249.0...251.0
1000 : (246.0...254.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 10.90
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 73...81

Testing:
Speed rpm : 100
Minimum rack travel: 5.00
Speed rpm : 250
Rack travel in mm : 3.30...3.70

CONSTANT REGULATION
Speed rpm : 250...330

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.70...8.10
2nd pressure hPa : 680
Rack travel in m: 11.00...11.10
3rd pressure hPa : 420
Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del. quantity cm³/ : 244.0...250.0
1000 s: (241.0...253.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 155.0...175.0
1000 s: (151.0...179.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 e
 Edition : 29.11.91
 Replaces : 1.12.89
 Test oil : ISO-4113
 Combination no. : 0 401 846 861
 Injection pump
 Pump designation : PE6P120A32ORS3176-1
 EP type number : 0 411 826 767
 Governor
 Governor design. : RGV250...1050PA808
 Governor no. : 0 421 813 553

Customer-spec. information
 Customer : ENASA

Engine : 96 R1 AX
 1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650
 Rack travel in mm : 12.40...12.50
 Del.quantity cm³/ : 21.2...21.4
 100 s : (20.9...21.7)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 4.2...4.4
 Del.quantity cm³/ : 2.5...3.1
 100 s : (2.2...3.4)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 350
 travel mm : 1.90...2.50
 3rd speed rpm : 700
 travel mm : 4.50...5.10
 4th speed rpm : 1095
 travel mm : 8.00...8.20
 5th speed rpm : 1185
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h: 900

Del. quantity : 212.0...214.0
1000 : (209.0...217.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 76...84

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 250
Rack travel in mm : 4.20...4.40

CONSTANT REGULATION
Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.30
2nd pressure hPa : 390
Rack travel in m: 11.50...11.60
3rd pressure hPa : 160
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1030
Del. quantity cm³/ : 215.0...221.0
1000 s: (212.0...224.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 155.0...175.0
1000 s: (151.0...179.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 f
 Edition : 08.10.91
 Replaces : 2.1.90
 Test oil : ISO-4113

Combination no. : 0 401 846 891

Injection pump
 Pump designation : PE6P120A720RS3216
 EP type number : 0 411 826 781
 Governor
 Governor design. : RQV300...975PA898K
 Governor no. : 0 421 815 197

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8210.42.269

1st version kW : 261.0
 Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 23.5...23.7
 100 s: (23.2...24.0)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.4...4.6
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.60...2.00

2nd speed rpm : 400
 travel mm : 3.20...4.00

3rd speed rpm : 750
 travel mm : 6.70...7.10

4th speed rpm : 975
 travel mm : 9.60...9.80

5th speed rpm : 1200
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1015
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 975
 Aneroid pressure h: 1200

Del. quantity : 235.0...237.0
1000 : (232.0...240.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 115...123

Testing:
1st rack travel in: 11.80
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79

Testing:
Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 300
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION
Speed rpm : 280...400

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 12.80...12.90
2nd speed rpm : 830
Rack travel in m: 12.40...12.60
3rd speed rpm : 500
Rack travel in m: 11.30...11.50
4th speed rpm : 350
Rack travel in m: 11.20...11.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 975
Pressure hPa : 1200
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 975

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 600

Rack travel in m: 11.40...11.50
3rd pressure hPa : 400
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 500
Del. quantity cm³/ : 185.0...191.0
1000 s: (182.0...194.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 d
 Edition : 29.11.91
 Replaces : 22.3.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 900
 Injection pump
 Pump designation : PE6P120A320RS3240
 EP type number : 0 411 826 786
 Governor
 Governor design. : RQV250...1025PA921
 -16
 Governor no. : 0 421 813 799

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD122FL

1st version kW : 298.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.60...13.70
 Del.quantity cm³/ : 25.1...25.3
 100 s: (24.8...25.6)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm³/ : 1.7...2.2
 100 s: (1.5...2.5)
 Spread cm³ : 0.5
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 450
 travel mm : 3.60...4.20
 3rd speed rpm : 800
 travel mm : 6.30...6.70
 4th speed rpm : 1070
 travel mm : 8.00...8.20
 5th speed rpm : 1150
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1200
Del.quantity : 251.0...253.0
1000 : (248.0...256.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.60
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 250
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 90
Rack travel in m: 10.10...10.20
3rd pressure hPa : 800
Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with RO80
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 di
 Edition : 29.11.91
 Replaces : 5.7.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 901
 Injection pump
 Pump designation : PE6P120A32ORS3240-1
 EP type number : 0 411 826 787
 Governor
 Governor design. : RQV250...950PA921-17
 Governor no. : 0 421 813 800

Customer spec. information
 Customer : VOLVO-TRUCK

Engine : TD122FH

1st version kw : 269.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 22.3...22.5

100 s: (22.0...22.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 985
 travel mm : 8.10...8.30

5th speed rpm : 1060
 travel mm : 9.40...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1030

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 223.0...225.0
1000 : (220.0...228.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.70
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 250
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 90
Rack travel in m: 10.10...10.20
3rd pressure hPa : 470
Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y
Edition : 29.11.91
Replaces : 6.10.89
Test oil : ISO-4113

Combination no. : 0 401 846 902

Injection pump
Pump designation : PE6P110A32ORS3080-4
EP type number : 0 411 816 766
Governor
Governor design. : RQV250...1025PA921
-18
Governor no. : 0 421 813 801

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : TD102FL

1st version kW : 239.0
Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 19.6...19.8

100 s: (19.4...20.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.2)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.20...2.80

3rd speed rpm : 700
travel mm : 6.30...6.70

4th speed rpm : 1085
travel mm : 7.70...7.90

5th speed rpm : 1170
travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1120
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 1000
Del.quantity : 196.0...198.0
1000 : (194.0...200.0)

Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 12.40
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.40
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION

Speed rpm : 250...370

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 90
Rack travel in m: 10.10...10.20
3rd pressure hPa : 680
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm3/ : 134.5...136.5
1000 s: (131.5...139.5)

BREAKAWAY

1st version
1mm rack travel less than:

full load rack tr: 12.40
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del. quantity cm3/ : 15.0...19.0
1000 s: (12.0...22.0)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y1
 Edition : 29.11.91
 Replaces : 2.10.89
 Test oil : ISO-4113
 Combination no. : 0 401 846 903
 Injection pump
 Pump designation : PE6P110A32ORS3080-5
 EP type number : 0 411 816 767
 Governor
 Governor design. : RQV250...950PA921-19
 Governor no. : 0 421 813 802

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD102FM

1st version kW : 235.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 19.6...19.8

100 s: (19.4...20.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.2)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.20...2.80

3rd speed rpm : 750
 travel mm : 6.30...6.70

4th speed rpm : 995
 travel mm : 8.20...8.40

5th speed rpm : 1060
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 196.0...198.0

1000 : (194.0...200.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.40
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.40
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION
Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 90
Rack travel in m: 10.10...10.20
3rd pressure hPa : 680
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 134.5...136.5
1000 s: (131.5...139.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.0...22.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 L 5
 Edition : 06.04.90
 Replaces : 6.10.89
 Test oil : ISO-4113
 Combination no. : 0 401 846 907
 Injection pump
 Pump designation : PE6P120A320LS3815-13
 EP type number : 0 411 826 782
 Governor
 Governor design. : RQV350...1050PA925
 Governor no. : 0 421 813 764

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kW : 191.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 18.2...18.5
 100 s: (17.9...18.8)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.6...5.2
 Del.quantity cm³/ : 1.4...2.2
 100 s: (1.1...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.40...1.60
 2nd speed rpm : 800
 travel mm : 4.70...5.10
 3rd speed rpm : 1100
 travel mm : 7.60...8.20
 4th speed rpm : 1175
 travel mm : 9.20...9.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1080
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 900
Del. quantity : 182.0...185.0
1000 : (179.0...188.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:
Speed rpm : 250
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 4.60...5.20

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.40...11.50
2nd speed rpm : 950
Rack travel in m: 11.90...12.10
3rd speed rpm : 850
Rack travel in m: 12.40...12.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.30...9.50

Measurement

Speed 1/min : 500

1st pressure hPa : 400
Rack travel in m: 10.10...10.30
2nd pressure hPa : 600
Rack travel in m: 11.70...12.10

K27

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 800
Del. quantity cm³/ : 209.0...213.0
1000 s: (206.0...216.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 900
Speed rpm : 1050
Del. quantity cm³/ : 155.0...157.0
1000 s: (152.0...160.0)
Spread cm³ : -
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 129.0...131.0
1000 s: (126.0...134.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 x 3
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 910
 Injection pump
 Pump designation : PE6P110A320LS3851-1
 EP type number : 0 411 816 780
 Governor
 Governor design. : RQ300/1050PA187-26
 Governor no. : 0 421 801 489

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 160.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 12.20...12.30
 Del. quantity cm³/ : 12.2...12.4
 100 s: (11.9...12.6)
 Spread cm³ : 0.8
 100 s: (1.3)

2nd speed rpm : 300.0
 Rack travel in mm : 7.4...8.0
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.6
 100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 122.0...124.0
 1000 : (119.5...126.5)
 Spread cm³ : 8.50
 1000 : (13.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 123.0...129.0
1000 s: (120.5...131.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 w 2
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 918
 Injection pump
 Pump designation : PE6P110A32QLS3851-1
 EP type number : 0 411 816 780
 Governor
 Governor design. : RQV300...1050PA884-6
 Governor no. : 0 421 813 832

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 160.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm3 : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...8.0

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.6

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00

2nd speed rpm : 460
 travel mm : 2.70...3.20

3rd speed rpm : 738
 travel mm : 4.60...5.10

4th speed rpm : 1107
 travel mm : 7.90...8.40

5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 122.0...124.0
1000 : (119.5...126.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control Lever
position degrees: 116...124

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00

CONSTANT REGULATION

Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 123.0...129.0
1000 s: (120.5...131.5)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 e1
 Edition : 29.11.91
 Replaces : 2.10.89
 Test oil : ISO-4113

Combination no. : 0 401 846 922

Injection pump
 Pump designation : PE6P120A320RS3176-3
 EP type number : 0 411 826 793
 Governor
 Governor design. : RQV250...1050PA808
 Governor no. : 0 421 813 553

Customer-spec. information
 Customer : ENASA

Engine : 96 R1 CX

1st version kW : 220.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 19.6...19.8
 100 s: (19.3...20.1)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ : 1.1...1.7
 100 s: (0.8...2.0)

Spread cm³ : 0.7
 100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 1.70...2.30

3rd speed rpm : 700
 travel mm : 4.50...5.10

4th speed rpm : 1095
 travel mm : 8.20...8.40

5th speed rpm : 1185
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1110
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h: 900

Del.quantity : 196.0...198.0
1000 : (193.0...201.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 80...88

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 250
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 250...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.40
2nd pressure hPa : 500
Rack travel in m: 12.30...12.40
3rd pressure hPa : 270
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1030
Del.quantity cm³/ : 208.0...214.0
1000 s: (205.0...217.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...135.0
1000 s: (111.0...139.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...6.80

Remarks:

Start of delivery - engine: 21° before TDC

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 q
 Edition : 29.11.91
 Replaces : 10.8.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 927
 Injection pump
 Pump designation : PE6P110A720RS3258
 EP type number : 0 411 816 771
 Governor
 Governor design. : RQ325/1200PA913-2
 Governor no. : 0 421 801 539

Customer-spec. information
 Customer : DAF

Engine : HT 168 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 12.50...13.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.80...8.00
 & maximum rack tra: 12.5...13.5
 Difference ° CS : 1.50...3.00

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 13.30...13.40
 Del.quantity cm³/ : 12.3...12.5
 100 s: (12.1...12.8)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 325.0
 Rack travel in mm : 7.7...8.1
 Del.quantity cm³/ : 1.4...1.9
 100 s: (1.1...2.1)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 123.5...125.5
 1000 : (121.0...128.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8
 Testing:
 1st rack travel in: 12.30
 Speed rpm : 1235...1250
 2nd rack travel in: 4.00

Speed rpm : 1325...1355
4th rack travel in: 1500
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack trave: 7.90
Speed rpm : 325
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 385...425

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.30...14.40
2nd speed rpm : 1200
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.50...11.70
2nd pressure hPa : 370
Rack travel in m: 12.80...12.90
3rd pressure hPa : 240
Rack travel in m: 11.80...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 81.5...83.5
1000 s: (79.0...86.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1235...1250

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.60...6.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 r
Edition : 29.11.91
Replaces : 20.12.90
Test oil : ISO-4113
Combination no. : 0 401 846 928
Injection pump
Pump designation : PE6P110A72ORS3258
EP type number : 0 411 816 771
Governor
Governor design. : RQV325...1200PA910-1
Governor no. : 0 421 813 880

Customer-spec. information
Customer : DAF

Engine : HT 168 G

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 0 681 343 009
Opening pressure, bar : 172...175
Test lines : 1 680 750 015
Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 12.50...13.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.80...8.00
& maximum rack tra: 12.5...13.5
Difference ° CS : 1.50...3.00

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 13.30...13.40
Del.quantity cm3/ : 12.3...12.5
100 s: (12.1...12.8)
Spread cm3 : 0.4
100 s: (0.7)

2nd speed rpm : 325.0
Rack travel in mm : 7.7...8.1
Del.quantity cm3/ : 1.4...1.9
100 s: (1.1...2.1)
Spread cm3 : 0.4
100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
1st speed rpm : 1245
travel mm : 8.10...8.30
2nd speed rpm : 325
travel mm : 0.90...1.30
3rd speed rpm : 500
travel mm : 2.90...3.50
4th speed rpm : 800
travel mm : 4.60...5.00
5th speed rpm : 1500
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1240
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 123.5...125.5
1000 : (121.0...128.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.30
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 79...87

Testing:
Speed rpm : 100
Minimum rack travel: 7.90
Speed rpm : 325
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 340...460

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 11.20...11.40
2nd pressure hPa : 370
Rack travel in m: 12.80...12.90
3rd pressure hPa : 240
Rack travel in m: 11.80...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 81.5...83.5
1000 s: (79.0...86.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1240...1250

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.60...6.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 5,9 b
 Edition : 18.12.91
 Replaces : 23.8.91
 Test oil : ISO-4113

Combination no. : 0 401 846 937

Injection pump
 Pump designation : PE6P110A320RS3266
 EP type number : 0 411 816 777
 Governor
 Governor design. : RQV300...1300PA996K
 Governor no. : 0 421 815 277

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD63ES

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.40...2.50
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 780

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 13.9...14.1

100 s: (13.7...14.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 330.0
 Rack travel in mm : 5.4...5.6
 Del. quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.4)

Spread cm³ : 0.7
 100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 330
 travel mm : 1.20...1.60

2nd speed rpm : 500
 travel mm : 2.90...3.50

3rd speed rpm : 900
 travel mm : 4.70...5.30

4th speed rpm : 1370
 travel mm : 9.80...10.00

5th speed rpm : 1450
 travel mm : 11.00...11.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1

Speed rpm : 1470
 Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 780
 Aneroid pressure h: 1200

Del.quantity : 139.0...141.0
1000 : (137.0...143.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 11.20
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1520
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 330
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 330...600

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 780
Rack travel in m: 11.90...12.00
2nd speed rpm : 1300
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.20...12.40

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 110
Rack travel in m: 8.70...8.80
3rd pressure hPa : 750
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm³/ : 130.0...134.0
1000 s: (127.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 780
Del.quantity cm³/ : 73.0...75.0
1000 s: (70.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...130.0
1000 s: (96.0...134.0)
Rack travel in mm : 10.40...10.90

LOW IDLE

Speed rpm : 330
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.0...24.0)
Spread cm³ : 7.00
1000 s: (11.00)

Remarks:

:

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 5,9 b 1
 Edition : 18.12.91
 Replaces : 23.8.91
 Test oil : ISO-4113

Combination no. : 0 401 846 938

Injection pump
 Pump designation : PE6P110A32ORS3266
 EP type number : 0 412 816 777
 Governor
 Governor design. : RQV300...1300PA996-1
 K
 Governor no. : 0 421 815 278

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD63E

1st version kW : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.40...2.50
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 780

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 330.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.7...2.1

100 s: (1.4...2.4)

Spread cm³ : 0.7

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 330

travel mm : 1.20...1.60

2nd speed rpm : 500

travel mm : 2.90...3.50

3rd speed rpm : 900

travel mm : 4.70...5.30

4th speed rpm : 1370

travel mm : 9.80...10.00

5th speed rpm : 1450

travel mm : 11.00...11.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 780

Aneroid pressure h: 1200
Del. quantity : 102.0...104.0
1000 : (100.0...106.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.20
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1520
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78

Testing:
Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 330
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 330...600

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 780
Rack travel in m: 10.30...10.40
2nd speed rpm : 1050
Rack travel in m: 10.80...11.00
3rd speed rpm : 1300
Rack travel in m: 11.20...11.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 11.20...11.40

Measurement
Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 110
Rack travel in m: 8.70...8.80

3rd pressure hPa : 530
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del. quantity cm³/ : 114.0...118.0
1000 s: (111.0...121.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 1300
Del. quantity cm³/ : 118.0...124.0
1000 s: (115.0...127.0)
Aneroid pressure h: -
Speed rpm : 780
Del. quantity cm³/ : 73.0...75.0
1000 s: (70.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...130.0
1000 s: (96.0...134.0)
Rack travel in mm : 10.40...10.90

LOW IDLE

Speed rpm : 330
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 17.0...21.0
1000 s: (14.0...24.0)
Spread cm³ : 7.00
1000 s: (11.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 x 4
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 942
 Injection pump
 Pump designation : PE6P110A320LS3851-1
 EP type number : 0 411 816 780
 Governor
 Governor design. : RQ300/1050PA187-33
 Governor no. : 0 421 801 574

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 11.8...12.0

100 s: (11.5...12.2)

Spread cm3 : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.7

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 118.0...120.0

1000 : (115.5...122.5)

Spread cm3 : 8.50

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.40
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 119.0...125.0
1000 s: (116.5...127.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 w 3
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 943
 Injection pump
 Pump designation : PE6P110A320LS3851-1
 EP type number : 0 411 816 780
 Governor
 Governor design. : RQV300...1050PA884-9
 Governor no. : 0 421 813 912

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 11.8...12.0

100 s: (11.5...12.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.7

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00

2nd speed rpm : 460
 travel mm : 2.70...3.20

3rd speed rpm : 730
 travel mm : 4.70...5.20

4th speed rpm : 1107
 travel mm : 7.90...8.40

5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 118.0...120.0
1000 : (115.5...122.5)
Spread cm3 : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: ?

Testing:
Speed rpm : 200
Minimum rack travel: 8.40
Speed rpm : 300
Rack travel in mm : 6.40...7.00

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 119.0...125.0
1000 s: (116.5...127.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

POSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 l
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 951
 Injection pump
 Pump designation : PE6P120A320RS3240
 EP type number : 0 411 826 786
 Governor
 Governor design. : RQV250...1175PA371-2
 Governor no. : 0 421 813 945

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD122FS

1st version kW : 309.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.20...13.30
 Del.quantity cm³/ : 23.3...23.5
 100 s: (23.0...23.8)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 4.9...5.1
 Del.quantity cm³/ : 2.7...3.3
 100 s: (2.5...3.5)
 Spread cm³ : 0.5
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 450
 travel mm : 2.40...3.00
 3rd speed rpm : 800
 travel mm : 4.40...5.00
 4th speed rpm : 1240
 travel mm : 8.50...8.70
 5th speed rpm : 1350
 travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1240
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1200

Del.quantity : 233.5...235.5
1000 : (230.5...238.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:
1st rack travel in: 12.20
Speed rpm : 1230...1240
2nd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1420
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 250...340

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 205
Rack travel in m: 10.50...10.60
3rd pressure hPa : 710
Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 160.0...162.0
1000 s: (157.0...165.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1230...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 x 5
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 952

Injection pump
 Pump designation : PE6P110A320LS3851-1
 EP type number : 0 411 816 780
 Governor
 Governor design. : RQ300/1050PA187-33
 Governor no. : 0 421 801 574

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 11.8...12.0

100 s: (11.5...12.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.7

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 118.0...120.0

1000 : (115.5...122.5)

Spread cm³ : 8.50

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.40
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 119.0...125.0
1000 s: (116.5...127.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

7mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 y5
 Edition : 22.11.91
 Replaces : 23.8.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 957
 Injection pump
 Pump designation : PE6P110A720RS3115
 EP type number : 0 411 816 735
 Governor
 Governor design. : RQV250...1100PA468-1
 Governor no. : 0 421 813 956

Customer-spec. information
 Customer : SCANIA

Engine : DN11 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm³ : 0.5

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.4...4.8

Del.quantity cm³/ : 1.2...1.6

100 s: (-)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.20...1.60

2nd speed rpm : 350
 travel mm : 2.40...3.00

3rd speed rpm : 650
 travel mm : 4.60...5.20

4th speed rpm : 1145
 travel mm : 8.60...8.80

5th speed rpm : 1255
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 104.0...106.0

1000 : (102.0...108.0)

Spread cm³ : 5.00

1000 : (7.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 10.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack trave: 6.00
Speed rpm : 250
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 360...420

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1100
Del.quantity cm³/ : 110.5...115.5
1000 s: (108.0...118.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.40...4.60

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 j
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 959
 Injection pump
 Pump designation : PE6P120A72ORS3293
 EP type number : 0 411 826 801
 Governor
 Governor design. : RGV225...1000PA1016-
 6
 Governor no. : 0 421 813 971
 Customer-spec. information
 Customer : IVECO-UNIC
 Engine : 8215.22.400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 14.20...14.30
 Del.quantity cm³/ : 20.6...20.8
 100 s: (20.3...21.1)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 375.0
 Rack travel in mm : 7.1...7.5
 Del.quantity cm³/ : 2.5...3.1
 100 s: (2.2...3.4)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 7.80...8.00
 2nd speed rpm : 225
 travel mm : 0.60...1.00
 3rd speed rpm : 700
 travel mm : 3.80...4.40
 4th speed rpm : 1300
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 11.90...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 700
 Del.quantity : 206.0...208.0
 1000 : (203.0...211.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 101...109

Testing:
1st rack travel in: 13.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 75...83

Testing:
Speed rpm : 300
Minimum rack travel: 9.50
Speed rpm : 375
Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

Speed rpm : 380...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 11.90...12.10
2nd pressure hPa : 260
Rack travel in m: 13.40...13.50
3rd pressure hPa : 200
Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 208.0...214.0
1000 s: (205.0...217.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 154.0...156.0
1000 s: (151.0...159.0)
1000 s: (8.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 245.0...275.0
1000 s: (241.0...279.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,2 c
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 960

Injection pump
 Pump designation : PE6P110A320RS3265
 EP type number : 0 411 816 778
 Governor
 Governor design. : RQV300...1100PA1019K
 Governor no. : 0 421 815 290

Customer-spec. information
 Customer : VME

Engine : TD102KTE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 16.8...17.0

100 s: (16.6...17.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 2.5...2.9

100 s: (2.3...3.1)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.90...1.30

2nd speed rpm : 500
 travel mm : 3.00...3.60

3rd speed rpm : 900
 travel mm : 7.30...7.70

4th speed rpm : 1150
 travel mm : 8.90...9.10

5th speed rpm : 1260
 travel mm : 10.80...11.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1230

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1500

Del.quantity : 168.0...170.0

1000 : (166.0...172.0)

Spread cm³ : 4.50

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 12.40
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 300...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.40...13.50
2nd speed rpm : 600
Rack travel in m: 12.80...13.00
3rd speed rpm : 740
Rack travel in m: 13.20...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1500
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 90
Rack travel in m: 10.50...10.60
Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500

Speed rpm : 600
Del.quantity cm³/ : 174.0...178.0
1000 s: (172.0...180.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 116.0...118.0
1000 s: (113.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 25.0...29.0
1000 s: (23.0...31.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VCL 12,2 k
 Edit on : 29.11.91
 Replaces : 23.10.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 961
 Injection pump
 Pump designation : PE6P120A32ORS3292
 EP type number : 0 411 826 804
 Governor
 Governor design. : RQV300...1050PA1020
 Governor no. : 0 421 813 976

Customer-spec. information
 Customer : VME

Engine : TD122 GH 3049
 1st version kW : 207.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 2...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.60...11.70
 Del. quantity cm³/ : 20.5...20.7
 100 s : (20.2...21.0)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 3.3...3.8
 100 s : (3.0...4.0)
 Spread cm³ : 0.5
 100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.70
 2nd speed rpm : 450
 travel mm : 2.40...3.00
 3rd speed rpm : 700
 travel mm : 4.30...4.90
 4th speed rpm : 1100
 travel mm : 7.80...8.00
 5th speed rpm : 1200
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 1200

Del. quantity : 205.0...207.0
1000 : (202.0...210.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 10.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 88...96

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.60...11.70
2nd speed rpm : 550
Rack travel in m: 12.90...13.10
3rd speed rpm : 650
Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.90
2nd pressure hPa : 530
Rack travel in m: 11.80...11.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 550
Del. quantity cm³/ : 243.0...249.0
1000 s: (240.0...252.0)
Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 208.0...210.0
1000 s: (205.0...213.0)

BREAKAWAY

1st version

1mm rack travel less than

full load-rack tr: 10.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del. quantity cm³/ : 33.0...38.0
1000 s: (30.5...40.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 c
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113
 Combinatic. no. : 0 401 846 962
 Injection pump
 Pump designation : PE6P120320RS3189
 EP type number : 0 411 826 759
 Governor
 Governor design. : RQ750PA783-3
 Govenor no. : 0 421 801 631

Customer-spec. information
 Customer : PENTA

Engine : TWD 1010 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 016
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00

M02

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.80...10.90
 Del.quantity cm³/ : 22.3...22.5
 100 s : (22.0...22.8)
 Spread cm³ : 0.5
 100 s : (0.9)
 2nd speed rpm : 300.0
 Del.quantity cm³/ : 2.0...2.6
 100 s : (1.8...2.8)
 Spread cm³ : 0.5
 100 s : (0.8)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 223.0...225.0
 1000 : (220.0...228.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Testing:
 1st rack travel in: 9.80
 Speed rpm : 750...755
 2nd rack travel in: 4.00
 Speed rpm : 779...792
 4th rack travel in: 850
 Speed rpm : 0.00...1.00

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 9.80
 Speed rpm : 750...755

Remarks:

:

APPLICATION

Generator set



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 L 6
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 805
 Injection pump
 Pump designation : PE8P110A320LS3846-2
 EP type number : 0 411 818 725
 Governor
 Governor design. : RQ300/1050PA187-27
 Governor no. : 0 421 801 488

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.90

Del.quantity cm³/ : 10.8...11.0

100 s: (10.5...11.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.7...8.3

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 108.0...110.0

1000 : (105.5...112.5)

Spread cm³ : 8.50

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.3

Testing:

Speed rpm : 200
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 7.00...7.60
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 108.0...114.0
1000 s: (105.5...116.5)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 L 7
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 806
 Injection pump
 Pump designation : PE8P110A320LS3846-2
 EP type number : 0 411 818 725
 Governor
 Governor design. : RQ300/1050PA187-28
 Governor no. : 0 421 801 492

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : C-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...8.0

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 122.0...124.0

1000 : (119.5...126.5)

Spread cm³ : 8.50

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 123.0...129.0
1000 s: (120.5...131.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 r 2
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 808
 Injection pump
 Pump designation : PE8P110A320LS3846-2
 EP type number : 0 411 818 725
 Governor
 Governor design. : RQV300...1050PA884-5
 Governor no. : 0 421 813 831

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442
 1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 12.20...12.30
 Del. quantity cm³/ : 12.2...12.4
 100 s: (11.9...12.6)
 Spread cm³ : 0.8
 100 s: (1.3)
 2nd speed rpm : 300.0
 Rack travel in mm : 7.4...8.0
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.6
 100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00
 2nd speed rpm : 460
 travel mm : 2.70...3.20
 3rd speed rpm : 738
 travel mm : 4.60...5.10
 4th speed rpm : 1107
 travel mm : 7.90...8.40
 5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 122.0...124.0
1000 : (119.5...126.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: ?

Testing:
Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 123.0...129.0
1000 s: (120.5...131.5)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 r 3
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 810
 Injection pump
 Pump designation : PE8P110A320LS3846-2
 EP type number : 0 411 818 725
 Governor
 Governor design. : RQV300...1050PA884-7
 Governor no. : 0 421 813 859

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cvl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.90

Del.quantity cm³/ : 10.8...11.0

100 s: (10.5...11.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.7...8.3

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00

2nd speed rpm : 460
 travel mm : 2.70...3.20

3rd speed rpm : 738
 travel mm : 4.60...5.10

4th speed rpm : 1107
 travel mm : 7.90...8.40

5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 108.0...110.0
1000 : (105.5...112.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 10.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: ?

Testing:
Speed rpm : 200
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 7.00...7.60

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 108.0...114.0
1000 s: (105.5...116.5)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,8 c1
 Edition : 18.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 820
 Injection pump
 Pump designation : PE8P120A720LS3281-1
 EP type number : 0 411 828 727
 Governor
 Governor design. : RQV300...1050PA1009
 Governor no. : 0 421 813 938

Customer-spec. information
 Customer : KHD

Engine : BF8L513LC

1st version kw : 243.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 13.30...13.40
 Del. quantity cm³/ : 18.6...18.8
 100 s : (18.3...19.1)
 Spread cm³ : 0.6
 100 s : (1.0)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 3.0...3.6
 100 s : (2.7...3.9)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 2.40...2.80
 2nd speed rpm : 450
 travel mm : 3.40...4.00
 3rd speed rpm : 725
 travel mm : 5.30...5.90
 4th speed rpm : 1100
 travel mm : 9.10...9.30
 5th speed rpm : 1175
 travel mm : 10.00...10.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1070
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 850
Del.quantity : 186.0...188.0
1000 : (183.0...191.0)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 12.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 86...94

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 300...500

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.30...13.40
2nd speed rpm : 650
Rack travel in m: 13.50...13.70
3rd speed rpm : 805
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 850
Rack travel mm : 13.50...13.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...12.00
2nd pressure hPa : 450
Rack travel in m: 13.00...13.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 850
Speed rpm : 650
Del.quantity cm³/ : 186.0...190.0
1000 s: (183.0...193.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 124.0...126.0
1000 s: (121.0...129.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 175.0...195.0
1000 s: (-)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,8 c
 Edition : 22.11.91
 Replaces : 23.10.91
 Test oil : ISO-4113
 Combination no. : 0 401 848 820
 Injection pump
 Pump designation : PE8P120A920/5LS3281
 EP type number : 0 411 828 724
 Governor
 Governor design. : RQV300...1050PA1009
 Governor no. : 0 421 813 938

Customer-spec. information
 Customer : KHD

Engine : BF8L513LC

1st version kW : 243.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 13.30...13.40
 Del. quantity cm³/ : 18.6...18.8
 100 s : (18.3...19.1)
 Spread cm³ : 0.6
 100 s : (1.0)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 3.0...3.6
 100 s : (2.7...3.9)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 2.40...2.80
 2nd speed rpm : 450
 travel mm : 3.40...4.00
 3rd speed rpm : 725
 travel mm : 5.30...5.90
 4th speed rpm : 1100
 travel mm : 9.10...9.30
 5th speed rpm : 1175
 travel mm : 10.00...10.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1070
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 850
Del.quantity : 186.0...188.0
1000 : (183.0...191.0)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control Lever
position degrees: 119...127

Testing:
1st rack travel in: 12.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 86...94

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 300...500

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.30...13.40
2nd speed rpm : 650
Rack travel in m: 13.50...13.70
3rd speed rpm : 805
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 850
Rack travel mm : 13.50...13.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...12.00
2nd pressure hPa : 450
Rack travel in m: 13.00...13.10

M15

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 850
Speed rpm : 650
Del.quantity cm³/ : 186.0...190.0
1000 s: (183.0...193.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 124.0...126.0
1000 s: (121.0...129.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 175.0...195.0
1000 s: (-)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 g1
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 822
 Injection pump
 Pump designation : PE8P120A920/5LS3857
 EP type number : 0 411 828 725
 Governor
 Governor design. : RQV300...1200PA357
 Governor no. : 0 421 813 188

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8280.02.412

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.85...2.95
 : (2.85...3.00)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 8.60...8.70
 Del.quantity cm³/ : 14.1...14.3
 100 s : (13.8...14.6)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.1...5.5
 Del.quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1295
 travel mm : 9.10...9.30
 2nd speed rpm : 250
 travel mm : 0.70...1.10
 3rd speed rpm : 500
 travel mm : 3.30...3.90
 4th speed rpm : 800
 travel mm : 5.10...5.50
 5th speed rpm : 1500
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1330
 Rack travel in mm : 6.30...8.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 141.0...143.0
 1000 : (138.0...146.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 114...122

Testing:

1st rack travel in: 7.60
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 60...68

Testing:

Speed rpm : 100
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 310...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 129.0...135.0
1000 s: (126.0...138.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.10...5.50
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)

M17

Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 f
 Edition : 18.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 823
 Injection pump
 Pump designation : PE8P120A520/4LS3858
 EP type number : 0 411 828 726
 Governor
 Governor design. : RQ750PA663-8
 Governor no. : 0 421 801 448

Customer-spec. information
 Customer : MAN

Engine : D 2848 LE

1st version kW : 265.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 24.6...24.8

100 s: (24.3...25.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 246.0...248.0

1000 : (243.0...251.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 13.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 782...795

4th rack travel in: 900

Speed rpm : 0.00...1.00

Remarks:

:

APPLICATION

Generator set



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,7 a7
 Edition : 08.09.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 849 172
 Injection pump
 Pump designation : PE10P110A520/5LS846
 EP type number : 0 411 819 020
 Governor
 Governor design. : RQ250/1000PA659-2
 Governor no. : 0 421 801 207

Customer-spec. information
 Customer : MAN

Engine : D2540MTF/390

1st version kW : 287.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

M20

Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 163.0...165.0

1000 : (160.5...167.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.20

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack trave: 8.70
Speed rpm : 250
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 13.10...13.20
2nd speed rpm : 1000
Rack travel in m: 12.20...12.30
3rd speed rpm : 790
Rack travel in m: 12.90...13.10
4th speed rpm : 890
Rack travel in m: 12.40...12.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 30
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 460
Rack travel in m: 12.50...12.60
3rd pressure hPa : 230
Rack travel in m: 10.90...11.30

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000

Del.quantity cm3/ : 149.0...153.0
1000 s: (146.0...156.0)

Spread cm3 : -
1000 s: (9.00)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 105.0...107.0
1000 s: (102.5...109.5)
1000 s: (7.50)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...165.0
1000 s: (141.0...169.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 7.10...7.30
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.5...20.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,1 a 1
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 312
 Injection pump
 Pump designation : PE6P110A320RS492
 EP type number : 0 411 816 161
 Governor
 Governor design. : RSV200...1100P1A305-
 1
 Governor no. : 0 421 833 203
 Customer-spec. information
 Customer : VOLVO-PENTA
 Engine : TD71APP
 1st version kW : 165.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)

M22

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance ± ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 11.50...11.60
 Del.quantity cm³/ : 10.9...11.1
 100 s : (10.7...11.3)
 Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 200.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.6...2.2
 100 s : (-)
 Spread cm³ : 0.3
 100 s : (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 109.0...111.0
 1000 : (107.0...113.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 50...58

Testing:
 1st rack travel in: 10.50
 Speed rpm : 1110...1120
 2nd rack travel in: 4.00

Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.0
Speed rpm : 200
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 280...340

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1110...1120

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,2 b1
 Edition : 20.12.91
 Replaces : 28.9.89
 Test oil : ISO-4113
 Combination no. : 0 401 876 761A
 Injection pump
 Pump designation : PE6P120A320RS3206
 EP type number : 0 411 826 773
 Governor
 Governor design. : RSV250...900P4A374-6
 Governor no. : 0 421 833 283

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TAMD122 A

1st version kW : 280.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.10...12.20
 Del.quantity cm³/ : 29.0...29.2
 100 s : (28.7...29.5)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 5.0...5.2
 Del.quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.5
 100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1200
 Del.quantity : 290.5...292.5
 1000 : (287.5...295.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 104...112

Testing:

1st rack travel in: 11.10
Speed rpm : 1020...1030
2nd rack travel in: 4.00
Speed rpm : 1080...1110
3rd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1160
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.6
Speed rpm : 250
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 380...440

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 1200
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 360
Rack travel in m: 8.90...9.00
3rd pressure hPa : 1030
Rack travel in m: 11.70...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 177.0...179.0
1000 s: (174.0...182.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1020...1030

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 8.60...8.80

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 v 1
 Edition : 18.12.91
 Replaces : --
 Test oil : ISO-4113

Combination no. : 0 401 876 763

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1200POA820-8
 Governor no. : 0 421 833 292

Customer spec. information
 Customer : MERCEDES-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 15.4...15.6

100 s: (15.1...15.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.1...3.7

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del.quantity : 154.0...156.0

1000 : (151.0...159.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.50
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 750
Rack travel in mm : 3.10...3.70
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.50...10.60
2nd speed rpm : 900
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm³/ : 162.0...166.0
1000 s: (159.0...169.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1260...1270 l/min. Afterwards, readjust speed regulation to 1210...1220 l/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 y7
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 774
 Injection pump
 Pump designation : PE6P110A720RS3115-1
 EP type number : 0 411 816 764
 Governor
 Governor design. : RSV350...1100P1A481-
 3
 Governor no. : 0 421 833 344

Customer-spec. information
 Customer : SCANIA

Engine : DN11 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.30...3.40
 : (3.25...3.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 11.70...11.80
 Del. quantity cm³/ : 10.4...10.6
 100 s : (10.2...10.8)
 Spread cm³ : 0.5
 100 s : (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 4.6...4.8
 Del. quantity cm³/ : 1.3...1.7
 100 s : (-)
 Spread cm³ : 0.2
 100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 104.0...106.0
 1000 : (102.0...108.0)
 Spread cm³ : 5.00
 1000 : (7.00)

RATED SPEED

1st version
 Control lever
 position degrees: 112...120

Testing:
 1st rack travel in: 10.70
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1190...1220
 4th rack travel in: 1350
 Speed rpm : 0.30...1.40

LOW IDLE 1
Control Lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.2
Speed rpm : 350
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 450...510

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1100
Del.quantity cm³/ : 110.5...115.5
1000 s: (108.0...118.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.60...4.80

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over

N01

on June 4, 1991

Start of delivery - engine: 21° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 s
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 778
 Injection pump
 Pump designation : PE6P110A72ORS3263
 EP type number : 0 411 816 776
 Governor
 Governor design. : RSV350...1100P1A481-
 3
 Governor no. : 0 421 833 344
 Customer-spec. information
 Customer : SCANIA
 Engine : DN11 47

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.20...10.30
 Del.quantity cm³/ : 12.0...12.2
 100 s: (11.7...12.5)
 Spread cm³ : 0.5
 100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 6.7...7.1
 Del.quantity/ cm³/ : 2.0...2.4
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 120.0...122.0
 1000 : (117.0...125.0)
 Spread cm³ : 5.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 82...90

Testing:
 1st rack travel in: 9.20
 Speed rpm : 750...755
 2nd rack travel in: 4.00

Speed rpm : 774...786
4th rack travel in: 920
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.2
Speed rpm : 350
Rack travel in mm : 5.10...5.30

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 230.0...270.0
1000 s: (226.0...274.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30

Remarks:

:

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 y8
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 786
 Injection pump
 Pump designation : PE6P110A72ORS3115
 EP type number : 0 411 816 735
 Governor
 Governor design. : RSV350...1100P1A481-
 3
 Governor no. : 0 421 833 344

Customer-spec. information
 Customer : SCANIA

Engine : DN11 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.30...3.40
 : (3.25...3.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 11.70...11.80
 Del. quantity cm³/ : 10.4...10.6
 100 s : (10.2...10.8)
 Spread cm³ : 0.5
 100 s : (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 4.6...4.8
 Del. quantity cm³/ : 1.3...1.7
 Spread cm³ : 0.2
 100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 104.0...106.0
 1000 : (102.0...108.0)
 Spread cm³ : 5.00
 1000 : (7.00)

RATED SPEED

1st version
 Control lever
 position degrees: 112...120

Testing:
 1st rack travel in: 10.70
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1190...1220
 4th rack travel in: 1350
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 75...83

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 4.2

Speed rpm : 350

Rack travel in mm : 4.60...4.80

Rack travel in mm : 2.00

Speed rpm : 450...510

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del.quantity cm³/ : 110.5...115.5

1000 s: (108.0...118.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 240.0...290.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 4.60...4.80

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with RO80 diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 5
 Edition : 29.11.91
 Replaces : 27.5.91
 Test oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump
 Pump designation : PE8P120A32QLS3816-10
 EP type number : 0 411 828 715
 Governor
 Governor design. : RSV650...1150POA823-5
 Governor no. : 0 421 833 280

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM422A

1st version kW : 206.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 13.6...13.8

100 s: (13.3...14.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.6

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 136.0...138.0

1000 : (133.0...141.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 46...54

Testing:

1st rack travel in: 8.40
Speed rpm : 1210...1215
2nd rack travel in: 4.00
Speed rpm : 1232...1247
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.60
Rack travel in mm : 2.00
Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 9.40...9.50
2nd speed rpm : 950
Rack travel in m: 10.80...11.10
3rd speed rpm : 1050
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm³/ : 159.0...162.0
1000 s: (156.0...165.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 1075
Del.quantity cm³/ : 141.0...153.0
1000 s: (138.0...156.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1210...1215

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 650
Rack travel in mm : 3.30...3.60
Del.quantity cm³/ : 18.0...24.0
1000 s: (15.0...27.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 8
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 878 711
 Injection pump
 Pump designation : PE8P120A320LS3816-10
 EP type number : 0 411 828 715
 Governor
 Governor design. : RSV650...1150POA823-5
 Governor no. : 0 421 833 280
 Cust. part no. : T3
 Customer-spec. information
 Customer : DAIMLER-BENZ
 Engine : OM422A
 1st version kW : 206.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 100...120
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 Firing order : 4- 1

Phasing : 0-45-90-135-180-225-270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180
 Rack travel in mm : 9.40...9.50
 Del.quantity cm³/ : 13.5...13.7
 100 s: (13.2...14.0)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 650.0
 Rack travel in mm : 3.3...3.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1180
 Del.quantity : 135.0...137.0
 1000 : (132.0...140.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:

1st rack travel in: 8.40
Speed rpm : 1210...1215
2nd rack travel in: 4.00
Speed rpm : 1232...1247
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.60
Rack travel in mm : 2.00
Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 9.40...9.50
2nd speed rpm : 950
Rack travel in m: 10.80...11.10
3rd speed rpm : 1050
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm³/ : 158.0...161.0
1000 s: (155.0...164.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 1075
Del.quantity cm³/ : 148.0...152.0
1000 s: (145.0...155.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.40

Speed rpm : 1210...1215

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 650
Rack travel in mm : 3.30...3.60
Del.quantity cm³/ : 16.0...22.0
1000 s: (13.0...25.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 d
 Edition : 18.01.91
 Replaces : 20.12.90
 Test oil : ISO-4113

Combination no. : 0 402 035 026

Injection pump
 Pump designation : PES5P120A720/3LS528
 EP type number : 0 412 025 022
 Governor
 Governor design. : RQ325/950PA813-18
 Governor no. : 0 421 801 563

Customer-spec. information
 Customer : MAN

Engine : D2865LF04 / LU04

1st version kW : 198.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 13.0...14.0
 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.4...4.6

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del. quantity : 221.0...223.0

1000 : (218.0...226.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.10
Speed rpm : 995...1010
2nd rack travel in: 4.00
Speed rpm : 1040...1070
4th rack travel in: 12.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 13.00...13.20
2nd speed rpm : 950
Rack travel in m: 12.60...12.70
3rd speed rpm : 800
Rack travel in m: 12.80...13.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 150
Rack travel in m: 9.30...9.40
3rd pressure hPa : 440
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

N11

1st version

Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm3/ : 227.0...233.0
1000 s: (224.0...236.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 225.0...231.0
1000 s: (222.0...234.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.40...4.60
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7056

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a22
 Edition : 15.12.89
 Replaces : 11.12.87
 Test oil : ISO-4113

Combination no. : 0 402 036 061

Injection pump
 Pump designation : PES6P120A720/3LS470-2

EP type number : 0 412 026 050
 Governor
 Governor design. : RQV300...1100PA700-2
 Governor no. : 0 421 813 543

Customer-spec. information
 Customer : MAN

Engine : D2866LF/290

1st version kW : 213.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.30...10.40

Del. quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.8...5.0
 Del. quantity cm³/ : 1.2...1.8
 100 s: (0.9...2.1)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.50...1.70

2nd speed rpm : 850
 travel mm : 5.70...6.00

3rd speed rpm : 1100
 travel mm : 8.00...8.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1130
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Aneroid pressure h: 1000
 Del. quantity : 183.0...185.0
 1000 : (180.0...188.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 8.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 300
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 375...435

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 10.30...10.40
2nd speed rpm : 1100
Rack travel in m: 9.90...10.00
3rd speed rpm : 850
Rack travel in m: 10.20...10.30
4th speed rpm : 925
Rack travel in m: 9.90...10.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 160
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 178.0...182.0
1000 s: (175.0...185.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm³/ : 174.0...180.0
1000 s: (171.0...183.0)
Aneroid pressure h: 160
Speed rpm : 500
Del.quantity cm³/ : 157.0...169.0
1000 s: (154.0...172.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a28
 Edition : 02.01.90
 Replaces : 30.9.88
 Test oil : ISO-4113

Combination no. : 0 402 036 069

Injection pump
 Pump designation : PES6P120A720/3LS470-
 3
 EP type number : 0 412 026 051
 Governor
 Governor design. : RQ300/1100PA679-2
 Governor no. : 0 421 801 402

Customer-spec. information
 Customer : MAN

Engine : D2866LUL/290

1st version kW : 213.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

N14

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:

Speed rpm : 300
Minimum rack travel: 6.60
Speed rpm : 300
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 750
Rack travel in m: 11.20...11.40
3rd speed rpm : 925
Rack travel in m: 10.70...11.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 210
Rack travel in m: 9.10...9.20
3rd pressure hPa : 375
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100

Del.quantity cm3/ : 190.0...196.0
1000 s: (187.0...199.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 174.0...180.0
1000 s: (171.0...183.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7878

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 g8
 Edition : 23.11.90
 Replaces : 5.8.88
 Test oil : ISO-4113
 Combination no. : 0 402 036 072
 Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ250/1100PA845-1
 Governor no. : 0 421 801 423

Customer-spec. information
 Customer : MAN

Engine : D2566 UH/205

1st version kW : 150.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 9.1...9.4

100 s: (8.8...9.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 91.0...94.0

1000 : (88.5...96.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.30

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 335...375

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 10.80...10.90
2nd speed rpm : 1100
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del.quantity cm3/ : 103.0...107.0
1000 s: (100.0...110.0)
Speed rpm : 500
Del.quantity cm3/ : 81.0...85.0
1000 s: (78.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...130.0
1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 15.0...20.0
1000 s: (12.5...22.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

: MAN-NR. 2-7902

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a39
 Edition : 15.12.89
 Replaces : 25.8.89
 Test oil : ISO-4113
 Combination no. : 0 402 036 079
 Injection pump
 Pump designation : PES6P120A720/3LS470-
 2
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQV300...1100PA876
 Governor no. : 0 421 813 661

Customer-spec. information
 Customer : MAN

Engine : D2866LF/290

1st version kW : 213.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.0...5.2
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.70...2.00
 2nd speed rpm : 850
 travel mm : 6.00...6.20
 3rd speed rpm : 1100
 travel mm : 8.10...8.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1190
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Aneroid pressure h: 1000
 Del.quantity : 183.0...185.0
 1000 : (180.0...188.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 8.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 100
Minimum rack travel: 6.60
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 310...410

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 10.30...10.40
2nd speed rpm : 1100
Rack travel in m: 9.80...9.90
3rd speed rpm : 925
Rack travel in m: 10.10...10.20
4th speed rpm : 975
Rack travel in m: 9.80...10.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 85
Rack travel in m: 9.40...9.50
3rd pressure hPa : 160

N19

Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del. quantity cm³/ : 178.0...182.0
1000 s: (175.0...185.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del. quantity cm³/ : 174.0...180.0
1000 s: (171.0...183.0)
Aneroid pressure h: 160
Speed rpm : 500
Del. quantity cm³/ : 157.0...169.0
1000 s: (154.0...172.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7761

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a47
 Edition : 23.11.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 084
 Injection pump
 Pump designation : PES6P120A720/3LS470-
 2
 EP type number : 0 412 026 050
 Governor
 Governor design. : RQV300...950PA876-11
 Governor no. : 0 421 813 896

Customer-spec. information
 Customer : MAN

Engine : D2866LF 07

1st version kW : 213.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 995
 travel mm : 9.20...9.40

2nd speed rpm : 300
 travel mm : 1.60...1.80

3rd speed rpm : 500
 travel mm : 3.40...4.00

4th speed rpm : 800
 travel mm : 6.70...7.10

5th speed rpm : 1250
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000
Del. quantity : 183.0...185.0
1000 : (180.0...188.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 293...301

Testing:
1st rack travel in: 8.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 256...264

Testing:
Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 280...390

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 9.80...9.90
2nd speed rpm : 750
Rack travel in m: 10.20...10.30
3rd speed rpm : 850
Rack travel in m: 10.00...10.10

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40

3rd pressure hPa : 160
Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 950
Del. quantity cm³/ : 181.0...185.0
1000 s: (178.0...188.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7087

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 j5
 Edition : 02.10.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 726A
 Injection pump
 Pump designation : PES6P120A720/3LS3205
 EP type number : 0 412 026 729
 Governor
 Governor design. : RQ300/1100PA813-2
 Governor no. : 0 421 801 416

Cust. part no. : 2-7943

Customer-spec. information
 Customer : MAN

Engine : D2866LX

1st version kW : 251.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

N22

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.80...12.90
 Del.quantity cm3/ : 22.8...23.0
 100 s: (22.5...23.3)
 Spread cm3 : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.1...4.3
 Del.quantity cm3/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm3 : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 650
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1200
 Del.quantity : 228.0...230.0
 1000 : (225.0...233.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.80
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.2

Testing:

Speed rpm : 100
Minimum rack trave: 5.70
Speed rpm : 300
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.80...12.90
2nd speed rpm : 700
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 110
Rack travel in m: 10.20...10.30
3rd pressure hPa : 470
Rack travel in m: 11.90...12.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1100

Del.quantity cm3/ : 227.0...233.0
1000 s: (224.0...236.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SAC 10,8 a
 Edition : 18.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 748
 Injection pump
 Pump designation : PES6P120A320/3RS3297
 EP type number : 0 412 026 753
 Governor
 Governor design. : RQV375...1000PA1022
 Governor no. : 0 421 813 981

Customer spec. information
 Customer : SACM

Engine : UD18L6R3D

1st version kW : 219.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.20...12.30
 Del.quantity cm³/ : 20.9...21.1
 100 s: (20.6...21.4)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 375.0
 Rack travel in mm : 6.8...7.2
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 8.30...8.50
 2nd speed rpm : 375
 travel mm : 1.70...2.10
 3rd speed rpm : 750
 travel mm : 5.60...6.20
 4th speed rpm : 1350
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 9.90...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 209.0...211.0
 1000 : (206.0...214.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 375
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 370...500

START CUT-OUT

Speed 1/min : 295 (315)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 225.0...255.0
1000 s: (221.0...259.0)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.80...7.20
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

N25

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 13,8 t
 Edition : 29.11.91
 Replaces : 5.84
 Test oil : ISO-4113

Combination no. : 0 402 046 103

Injection pump
 Pump designation : PES6P120A820LS249Z
 EP type number : 0 412 026 026
 Governor
 Governor design. : RQV300...1000PA204/4

Governer no. : 0 421 813 121

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8217.12.024

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.00...10.10

Del. quantity cm³/ : 16.8...17.0

100 s: (16.5...17.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.50...1.70

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 800
 travel mm : 6.40...6.60

4th speed rpm : 1000
 travel mm : 7.90...8.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 168.0...170.0

1000 : (165.0...173.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 9.00
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 9.20
Speed rpm : 300
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION
Speed rpm : 300...395

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1040...1050

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Rail car